PSYCHOLOGICAL AND PSYCHOPHYSIOLOGICAL RESPONSES TO ORGANISATIONAL AND INTERPERSONAL STRESSORS IN THE WORKPLACE AND THE WORKERS' COMPENSATION EXPERIENCE

by

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DECLARATION

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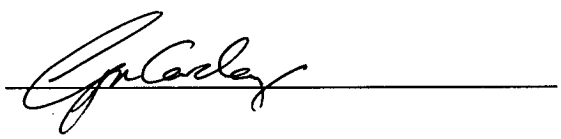

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ABSTRACT

Based on a multifaceted model of occupational stress, the current study aimed to provide a comprehensive examination of the variables associated with the experience of workplace stress. Investigation was made into the personal and environmental factors that contribute to the development of psychological injury after exposure to either organisational stressors or interpersonal stressors. Additionally, psychological and psychophysiological measures were obtained to understand whether exposure to interpersonal stressors translates to a more severe experience than exposure to organisational stressors at the time of the event. Finally, an evaluation of the workers compensation process and return to work outcomes were made for individuals who had lodged a claim based on psychological injury after either a workplace conflict or exposure to organisational stressors. The results from the current study provided evidence to suggest that various personal and environmental contributors influence the nature of the work stressor that an individual is exposed. Furthermore, it appears that interpersonal stress translates to a more severe psychological experience than exposure to organisational stress. Lastly, there was evidence to suggest that the experience of worker's compensation process differs for individuals who lodged a claim after the development of a psychological injury as a result of interpersonal conflict from those who were faced with organisational stressors. Conclusions, limitations of the current research and directions for future research are discussed.

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CHAPTER 1

INTRODUCTION AND OVERVIEW

1. INTRODUCTION AND OVERVIEW

1.1 Introduction to work stress

Occupational stress has received a great deal of renewed attention since the 1970s (Beehr, 1995). Occupational stress or work stress has been defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources and needs of the worker (Jex & Spector, 1996; National Institute for Occupational Safety and Health, NIOSH, 1999). Empirical studies attempting to determine the extent of the problem have indicated that although different work-related stressors may result in the development of a stress response, the experience itself is not restricted to any particular occupational group (Anderson, Cooper, & Willmott, 1996), level of position (Cooper & Payne, 1988), sex (Marini, Todd, & Slate, 1995) or cultural group (Lu, Tseng, & Cooper, 1999; Rout & Rout, 1997). Of course, certain variables have been associated with a higher rate of work stress or a more severe stress response.

The incidence of occupational stress is considered to be a significant and escalating problem in the public and private workforce both nationally (Toohey, 1995) and internationally (NIOSH, 1999). A study examining the distribution of psychological distress in twelve occupational groups in Quebec over the period of 1987 to 1998 reported sharp increases in prevalence during 1987 and 1992. Although a decline was found after this time, the prevalence of psychological distress was still higher than in 1987. Differences in psychological distress were found to depend on workers' level of employment. Only the non-qualified white collar workers, semi-qualified blue collar and non qualified blue collar male

workers displayed an increase in psychological distress over time. Restructuring of the work environments was named as one possible explanation for this rise in incidence rates (Marchand, Durand, & Demers, 2005). In Britain, the 2004/2005 Self-reported Work-related Illness prevalence estimate indicated that around half a million individuals in Britain reported that, during 2004 and 2005, they were experiencing work related stress at a level that was making them ill. The Stress and Health at Work Study (SHAW) indicated that nearly 1 in 5 of all working individuals thought their job was very or extremely stressful (http://www.hse.gov.uk/statistics).

The Australian Workplace Industrial Relations Survey (AWIRS) (1995) found that 50 percent of Australian employees surveyed experienced increased stress in their jobs over the previous twelve months, while 59 percent reported increased effort and 46 percent an increase in the pace of work. A survey conducted by the Australian Council of Trade Unions (1998) showed that over one in four people had taken time off due to stress at work and other workers felt the need to take stress leave but, for various reasons, remained at work. In general, high workloads, long hours, organisational change and restructuring, inadequate staffing and resources, and difficult relations with management, including lack of communication and consultation, were identified in the survey as the most stressful conditions at work. The study indicated that stress responses did not relate to particular occupational groups as workers from manufacturing, construction, mining, retail, hospitality, communication, banking, insurance, business services, government administration, education, health, child and other care and personal and community services all yielded similar responses.

Not unexpectedly, with the rise in incidence of occupational stress, there has also been a consistent increase in the percentage of workers' compensation claims for work-related psychological injury, which now surpasses the incidence of any other injury claims (Pearson, McCarthy, & Guthrie, 1999). In the United States, the number of stress claims trebled during the 1990s with 15 percent of all workers' compensation claims being lodged as a result of occupational stress (Kendall, Murphy, O'Neill, & Bursnall, 2000). Similarly, there has been a rapid increase in compensation claims in the United Kingdom in recent years (Dyer, 2002).

In Australia, rates of occupational stress claims have fluctuated from 1994 to 2000. In NSW, there was a drop in claims during 1998 and 1999, however, the number rose again from 1999 to 2000. In Queensland there was a steady decrease in the number of claims from 1994 to 1995, however, from 1999 to 2000, this number increased once again. There was relative stability in the number of claims lodged in South Australia, the Northern Territory and Western Australia although there were some minor variations in Western Australia. Although stress responses can occur in any occupational group, the statistics in Australia indicated that the highest incidence of stress related claims were in the Health and Community Services and Education areas (Miller, 2003).

There is a significant cost to the employer when an employee develops occupational stress, as a result of absence from work and compensation payouts. Australian statistics have suggested that during 1994 to 1995, the average period of employee incapacity for stress related claims was over 20 weeks whereas claims for all other workplace injuries resulted in approximately three weeks of

absence (Nicoll, Fielding, & Newton, 1997). In Britain, seventy thousand employees are absent from work as a result of occupational stress every year (McKee, 1996) resulting in UK 7 billion pounds a year in lost productivity. In the United States, estimates are that stress-related illnesses cost US$66 billion a year (Tisza, Mottl, & Mathews, 2003).

In relation to costs associated with compensation payouts, in Australia, a Commonwealth audit report conducted by Nicoll and colleagues (1997) showed that, in 1996 to 1997, occupational stress accounted for around A$35 million in Commonwealth compensation to injured staff. At A$38 million in 1995 to 1996, stress was the third highest cost category of illness and injury experienced by the Commonwealth workers' compensation scheme after back injuries and strains. The average cost to the Commonwealth of a stress case of approximately A$23 thousand compared with an average of A$8 thousand for non-stress compensation cases.

In summary, the psychological injuries which develop as a result of exposure to conditions in the workplace constitute a significant problem both for the individual and the workplace. It appears as though the condition of occupational stress is not limited to particular occupations and occurs both internationally and nationally.

1.2 Stressors

Given the extent of the occupational stress problem, it is not surprising to find that there is an abundance of literature that attempts to determine the factors that contribute to the development of occupational stress (e.g., Appelberg,

Romanov, Heikkilae, Honkasalo, & Koskenvuo, 1996; Barling, 1990; Bruk-Lee & Spector, 2006; Comcare, 1997; Doby & Caplan, 1995; Falkum & Vaglum, 2005; Frone, 2000; Giebels & Janssen, 2005; Kelloway & Day, 2005; Leiter, 2005; Rupert & Morgan, 2005; Tillman & Beard, 2001; Tytherleigh, Webb, Cooper, & Ricketts, 2005; Varhama & Bjorkqvist, 2004; Wiesner, Windle, & Freeman, 2005). Many studies have focused on the specific work-related events that can result in the development of a stress response (e.g., Ahmad, 2005; Tytherleigh et al., 2005). These particular conditions, events or demands that typically evoke a stress reaction of increased physiological arousal and a negative emotional response and require an adaptive response to prevent harmful consequences, are referred to as stressors (Jex & Spector, 1996).

Workplace stressors can be categorised in a number of ways, including on the basis of the nature of their onset. Acute stressors refer to extreme or isolated events that an individual perceives as threatening (Anshel, 2000) and that tend to be time-limited (Barling, 1990). These acute stressors may or may not be traumatic in nature. On the other hand, chronic stressors are those conditions to which an individual will be repeatedly exposed over a length of time (Barling, 1990).

It has been well established that the consequence of exposure to work-related stressors can be significant and result in the development of a range of negative effects (e.g., DeFrank, Ivancevich, & Schweiger, 1988; Randolfi, 1996; Tillman & Beard, 2001). The initial response of an individual when faced with a stressor involves an increase in sympathetic nervous system arousal in preparation for greater levels of action. This increase in energy comes from an

increased heart rate, raised blood pressure, muscle tension, and general physical and mental alertness (Selye, 1982). However, prolonged exposure to stressors can result in many negative physical, emotional and behavioural consequences and these can range in terms of severity from occasional negative symptoms to chronic occupational stress (Comcare, 1997).

Prolonged exposure to work-related stress has been implicated in the development or aggravation of a number of physical conditions including coronary heart disease, gastrointestinal disorders, back pain and migraines (Comcare, 1997). In relation to the emotional implications of prolonged periods of exposure to workplace stressors, individuals have reported feelings of depression and burnout (Barling & Kryl, 1990; Barling & MacIntyre, 1993; Bluen & Barling, 1987; Bluen, Barling, & Burns, 1990; Kelloway & Barling, 1991; Stewart & Barling, 1996), anxiety (Burke, 1987; Burke & Greenglass, 1993, Burke, Greenglass, & Schwarzer, 1996), somatic symptoms and a decreased sense of well-being (Dolan, 1994; Dolan, Van Ameringen, & Arsenault, 1992). Behavioural indicators of occupational stress include heavy alcohol consumption (Hagihara, Tarumi, Miller, Nebeshima, & Nobutomo, 2000), decreased performance and productivity at work, decreased job satisfaction, absenteeism, greater turnover intentions as well as work place sabotage (Comcare, 1997; DeFrank et al., 1988; Tillman & Beard, 2001). From the point of view of the organisation itself, the development of occupational stress can result in reductions in effectiveness, productivity, accidents in the workplace, job turnover, poor work relations and absenteeism (Randolfi, 1996).

In summary, it has been established unequivocally that exposure to workplace stressors, whether acutely or chronically, may result in the development of physical, psychological and behavioural signs of occupational stress as well as having a financial impact.

1.3 Organisational/job-related stressors

As previously stated, there has been extensive research examining the effects of exposure to work place stressors and it is clear that stressors can be differentiated and examined in a number of ways. Stressors can be differentiated on the basis of their nature, for example, organisational and job-related type stressors such as increasing workload (Grunfeld et al., 2005), compared with interpersonal stressors such as workplace conflict (Doby & Caplan, 1995; Lawrence, 2002). The National Institute for Occupational Safety and Health (NIOSH, 1999) has identified and categorised a host of problematic stressors in the workplace that can precipitate the development of occupational stress into five groups relating to the design of tasks (e.g., a heavy or high workload, infrequent breaks), management style (e.g., poor communication in the organization, non-family friendly policy), work roles (e.g., uncertain job expectations), career concerns (e.g., job insecurity), and environmental conditions (e.g., ergonomic problems, dangerous conditions). These five categories can be viewed as organisational or job-related stressors.

Research has supported the association between the experience of these types of work stressors and the development of stress at work. Grunfeld et al. (2005) examined the effects of ongoing changes to the health care system and found that increasing workloads emerged as a major source of job stress.

Tytherleigh and colleagues (2005) reported that restructuring and reductions in funding resulted in more job insecurity. In addition, more job-related stress was experienced in response to factors such as low levels of control and this reduced the overall commitment employees had to their organisation. Indeed, organisational change has been identified as a source of considerable stress due to factors such as increased workloads, uncertainty/ambiguity and perceived unfairness (Robinson & Griffiths, 2005).

A study examining occupational stress among educational psychologists found that the most commonly cited sources of stress were a high workload and increased administrative tasks (Gersch & Teuma, 2005). Similar results were found in another study of psychologists where greater emotional exhaustion was associated with less control of work activities, working more hours and increased time spent on paperwork (Rupert & Morgan, 2005).

Taris et al. (2005) investigated the effects of job control on burnout and found an association between these two. Decreased control over the work environment has been found to negatively impact on physical health, psychological health and job satisfaction (Schindler et al., 2006). It has been demonstrated that job satisfaction is influenced by job control along with minor daily stressors, positive work experiences, and perceived supervisor support (Mansell, Brough, & Cole, 2006). The lack of influence over work activities has been identified as an important predictor of work stress for police officers (Morash, Haarr, & Kwak, 2006). Kossek, Lautsch and Eaton (2006) found that job control influenced turnover intentions, depression and family-work conflict.

Aside from workload, Oberlechner and Nimgade (2005) found that pressures to make a profit and decision-making processes were sources of significant stress for employees in financial markets. For mental health social workers, limited decision-making and excessive job demands were reported to contribute to poor job satisfaction and most aspects of burnout (Evans et al., 2006).

Kecklund (2005) found that long work hours and work stress impede work performance and impact on sleep. Similarly, it has been reported that strict deadlines and extended work hours lead to stress and exhaustion when examining this link with a group of software professionals (Rajeswari & Anatharaman, 2005).

Job design has been found to have an impact on employee well-being. For example, Kelloway and Day (2005) demonstrated that improvements in job design increased organisational effectiveness and employee well being. In relation to shifts in attitude towards the workplace after exposure to organisational stressors, job insecurity and lack of support have been found to increase staff turnover intentions (Robertson et al., 2005).

Role ambiguity and role conflict have been reported to influence organisational commitment for a group of correctional staff (Hogan, Lambert, Jenkins, & Wambold, 2006). Ahmad (2005) examined role overload, role ambiguity, political and group pressure, intrinsic impoverishments and strenuous working conditions for a group of industrial workers and found that all of these factors resulted in reports of occupational stress. A cross sectional study reported a link between exposure to job stressors of high job boredom, low skill

variety and low autonomy and reports of depression and heavy alcohol use (Wiesner et al., 2005).

Even though there is considerable evidence to suggest a link between workplace organizational or job-related stressors and the experience of work stress, there have been some studies that failed to support this association. For example, Sheward et al. (2005), in a study of nurses, examined the relationship between workload and stress related factors such as dissatisfaction and emotional exhaustion. They found that there was a link between these two.

Clearly, a variety of organisational conditions in the workplace can lead to the development of physical psychological and behavioural consequences for an employee. There is a body of research that demonstrates an association between organisational or job-related stressors and the development, early signs and ailments of stress including anger, anxiety, depression, headaches, irritability, back pain, irritable bowel syndrome, and increased blood pressure, as well as employment-related variables such as turnover intentions (Anderson et al., 1996; Bogg & Cooper, 1994; Guglielmi & Tatrow, 1995; Marini et al., 1995). The recognition of particular conditions that often lead to the development of occupational stress has required employers, for liability reasons, to alter workplace environments to reduce the likelihood of its onset (Comcare, 1997).

1.4 Interpersonal stressors

Aside from these organisational-type stressors, NIOSH (1999) identified the impact of interpersonal relations in the workplace as relevant to the development of occupational stress. Interpersonal conflict occurs when two or

more incompatible motivations or behavioural impulses compete for expression (Doby & Caplan, 1995). There is a considerable amount of research that has demonstrated the detrimental effects of interpersonal conflict at work on an employee's health. For example, interpersonal conflict at work has been found to impair the functional capacity of employees (Appelberg et al., 1996) and to lead to feelings of burnout (Varhama & Bjorkqvist, 2004).

There have been inconsistent findings regarding sex differences and the experience of interpersonal conflict at work. For example, Romanov, Appelberg, Honkasalo, and Koskenvuo (1996) found that there was little difference in the psychological effects of interpersonal conflict on men and women, whereas others have found that interpersonal conflict is more stressful for women than for men (e.g., Appelberg et al., 1996; Hutri & Lindeman, 2002). According to Varhama and Bjorkqvist (2004), there is a tendency for men to actually report more conflict than women.

There has also been some investigation into the differences in the effects of conflict depending on with whom an employee is in conflict. For example, Bruk-Lee and Spector (2006) investigated the potentially differential impact of conflict with supervisors and co-workers on counterproductive work behaviours. Evidence for a differential relationship between conflict sources and counterproductive work behaviours was established.

Lloyd, McKenna and King (2005) investigated sources of stress experienced by occupational therapists and social workers in Australian public mental health services. They found that relationship conflicts with other professionals were correlated with increased stress. Similarly, Falkum and

Vaglum (2005) examined interpersonal problems at work experienced by physicians. The found that interpersonal conflict resulted in significantly higher job dissatisfaction and stress. Dijkstra, van Dierendonck, Evers and De Dreu (2005) examined the link between conflict at work and employee well-being and they also found that conflict was negatively associated with well-being. Giebels and Janssen (2005) found that interpersonal conflict at work is responsible for reduced well-being in terms of emotional exhaustion, absenteeism and turnover intentions.

Ben-Zur and Yagil (2005) examined the effects of workplace aggression from customers on employee well-being. They found that customer aggression was positively related to exhaustion and depersonalisation, which are aspects of burnout. Rowe and Sherlock (2005) found that regular verbal abuse resulted in a group of nurses being more stressed and feeling less satisfied with work than those who had not been verbally abused, with many nurses found to be absent from work and providing substandard care to their patients while at work as a result of elevated stress levels. Leiter (2005) also examined the impact of verbal abuse in the workplace and physical symptoms of stress and found a relationship between the two.

Interpersonal conflict at work has been shown to result in feelings of depression, lowered self-esteem and somatic symptoms (Frone, 2000), as well as suicidal ideation and high levels of depersonalisation and emotional exhaustion when there are constant conflicts at work (Richardson, Burke, & Leiter, 1992). Other serious complaints that have been shown to ensue as a result of interpersonal stressors in the workplace included strokes, reproductive disorders,

asthma and psychiatric disorders such as Posttraumatic Stress Disorder (PTSD), Major Depressive Disorder (MDD) and Panic Disorder with Agoraphobia (Cox, 2001). Importantly, it has been found that interpersonal stressors are particularly likely to generate anxiety symptoms that carry over from work to home (Doby & Caplan, 1995).

In summary, interpersonal interactions at work, and specifically interpersonal conflict, have been shown to result in many physical, psychological and behavioural consequences for employers and there is some evidence to indicate that the negative impact of interpersonal conflict continues well after the employee leaves the workplace (Doby & Caplan, 1995).

1.5 A comparison between organisational and interpersonal stressors

A review of the literature indicates that there has not been a systematic comparison of organisational and interpersonal stressors. It has been established that exposure to either of these types of stressors can result in a number of negative physical, psychological and behavioural consequences (e.g., Appelberg, et al., 1996; Bruk-Lee & Spector 2006; Doby & Caplan, 1995; Falkum & Vaglum, 2005; Frone, 2000; Giebels & Janssen, 2005; Leiter, 2005; Varhama & Bjorkqvist, 2004; Wiesner et al., 2005). However, interpersonal conflict, by the nature of the interaction, can be viewed as more personal in comparison with organisational stressors. Given that interpersonal conflict in more personal in this regard, it would be expected that an individual's psychological and physiological response when exposed to this type of stressor would be more severe than when exposed to a less personal organisational stressor. For this reason, the current study aims to compare workers' responses to these different types of stressors for

individuals who remain in the workplace, for individuals who have developed clinically significant occupational stress symptoms, and for workers who have lodged a worker's compensation claim as a result of the impact of exposure to these types of stressors.

A pilot study by Cardoz, Haines and Williams (2002) compared interpersonal and organisational stressors using a guided imagery methodology and demonstrated that experiencing both organisational and interpersonal conflict stressors cause a psychological and psychophysiological stress reaction. However, of interest was the finding that a resolution of the negative response took longer following an interpersonal conflict than the experience of an organisational stressor. These results were consistent with previous findings (e.g., Doby & Caplan, 1995) that have suggested that interpersonal stressors are particularly likely to generate anxiety symptoms that carry over from work to home.

1.6 Definition of the problem

As previously stated, there has been extensive research examining the effects of exposure to work place stressors, which can be differentiated on the basis of their nature or type. To date, little attention has been given to the differential effects on physical, psychological and behavioural states as a consequence of exposure to different types of stressors. An investigation of the impact of interpersonal stressors compared with organisational stressors may demonstrate that consequences for an employee may be more or less severe in nature depending on with what the individual is confronted. It would be useful to make a determination regarding the potentially different impact of exposure to

different types to stressors so that workplace interventions can then appropriately be targeted.

According to Berry's conceptualisation of occupational stress, a variety of personal and environmental contributors such as personality traits or daily irritants can influence the development of a stress response (Berry, 1998). There has been empirical research that has identified the role of these personal contributors (e.g., Eastburg, Williamson, Gorsuch & Ridley, 1994; Ganster, 1986; Greenglass & Burke, 2001; Hagihara, Tarumi, Miller, & Morimoto, 1997; Perrott & Taylor, 1995; Skjorshammer & Hofoss, 1999) and environmental contributors (e.g., Abouseire, 1996; Benishek & Lopez, 1997; Sahu & Misra, 1995; Whitehead & Ryba, 1995) on the development of occupational stress. However, a review of the literature indicates that, so far, there has been no investigation of the potentially differential influence of these factors as a function of exposure to either organisational/job related or interpersonal conflict stressors.

Aside from the potentially different experiences of occupational stress when faced with either interpersonal or organisational stressors, the workers' compensation experience may also differ depending on the type of stressor that instigated a psychological injury. Research in the workers' compensation area has shown that the workers' compensation process itself may have the potential to be detrimental to the claimant both psychologically and financially (Greenough & Fraser, 1989) and may also hinder outcomes (Armstrong & Lyth, 1999). Particular aspects of the process, such as litigation and the burden of proof have been identified as the factors that can make the process particularly taxing for the claimant (Toohey, 1993). It has also been argued that objectivity

and measurability of the impact of stressors is imperative in making a claim for psychological injury. For this reason, it would be useful to determine if claims lodged as a result of interpersonal conflict at work are more problematic for claimants than claims lodged after exposure to organisational stressors. A review of the literature indicates that such a comparison has not yet been made.

1.7 Overview of the current research

The proposed series of studies represents an examination of the differences in the influences of interpersonal conflict stressors and organisational stressors on employees. Initially, a review of current occupational stress-related theoretical literature was undertaken and four well-known theories were discussed. These included person-environment fit theories; job demand-job control model; effort-reward imbalance model; and Berry's general perspective on stress.

Following Berry's model, the first empirical study involved an examination of the influence of personal and environmental contributors and exposure to interpersonal and organisational stressors on a series of psychological and job related outcomes. Additionally, a comparison of these variables was made between individuals who were identified as having a clinical stress condition and those who had did not have clinical stress.

The second study considered the influence of interpersonal conflict and organisational stressors for individuals who had a work-related stress reaction that constituted clinically significant occupational stress. Psychological and psychophysiological measures were examined while individuals imaged the stressful work-event. The purpose of this study was to examine the immediate

impact of exposure to the two types of stressors in an effort to determine if one stressor was more severe than the other.

The third study examined the different experiences within the workers' compensation system of individuals with work stress who developed a psychological injury as a consequence of exposure to organisational or interpersonal stressors. It is expected that the results of these investigations can be used to direct and target workplace and clinical intervention.

CHAPTER 2

THEORETICAL CONCEPTUALISATIONS OF OCCUPATIONAL STRESS

2.1 Introduction

There are a number of theories that attempt to explain how work stress arises and how it contributes to the various negative physiological, psychological and behavioural consequences that can occur. These models differ in emphasis although each contributes to the current understanding of the stress process. The models presented either focus on general psychophysiological responses of individuals exposed to stressors, the specific aspects of the development of occupational stress, or the effects of stress on the individual as well as the organisation. The more comprehensive models attempt to include each of these aspects.

2.2 Selye's general adaptation syndrome

One of the earliest models of stress was Selye's (1936) General Adaptation Syndrome which considered that the stress process involved three distinct stages. The initial alarm stage is characterised by endocrine and nervous system changes that prepare the body for action, similar to Cannon's (1929) fight or flight reaction. The alarm stage was viewed as an adaptive response triggered by external demands. Responses may include increased muscle tension, heart rate, and respiration. If external demands were removed, the body would return to a normal state, however, if demand or stress continued, the resistance stage would begin and negative consequences would result (Selye, 1982). The body secretes further hormones that increase blood sugar levels to sustain energy and raise blood pressure. The adrenal cortex produces hormones called corticosteroids for

this resistance reaction. Overuse by the body's defence mechanism in this phase eventually leads to disease. If this adaptation phase continues for a prolonged period of time without periods of relaxation and rest to counterbalance the stress response, the organism becomes prone to fatigue, concentration lapses, irritability and lethargy as the effort to sustain arousal slides into negative stress. After further exposure to the demand, an inability to adapt would result in an organism entering the exhaustion stage. In this stage, the organism experiences "adrenal exhaustion". The blood sugar levels decrease as the adrenals become depleted, leading to decreased stress tolerance, progressive mental and physical exhaustion, illness and collapse. Seyle differentiated between eustress, or positive stress and distress, or negative stress.

Selye's model has been applied to the condition of occupational stress. For example, Stotland and Pendleton (1989) investigated the differences in the sources of stress and strain among policemen with high and low workloads. Singh (1990) investigated the relationship between occupational stress and social support among flight nurses, which was based on premises of Selye's model.

However, there have been some criticisms of this model. In particular, the model fails to consider psychosocial and cognitive processes that have received considerable attention in more recent accounts of stress (Rice, 1999). Additionally, the model does not consider the role of coping strategies that individuals may employ when faced with stressful situations (Rice, 1999). Essentially, the model is relatively simple in nature.

2.3 Interactional models

2.3.1 The stressors and strain approach

The stressors and strain approach is a relatively simple approach that asserts that stress occurs when particular workplace events or conditions contribute to poor psychological and physical health (Beehr, 1995). Stressors are specific work place conditions or situations that result in strain or stress. Strain refers to the employee's physiological and psychological response to the stress (Hurrell, Nelson, & Simmons, 1998).

There is research investigating the basic premise of this model, identifying particular work place stressors that cause negative physical, psychological and behavioural consequences, indicative of strain. For example, Kouvonen, Kivimaki, Virtanen, Pentti and Vahtera (2005) found that high job strain was associated with smoking. Kecklund (2005) found that long work hours and work stress impedes work performance and negatively impacts on sleep. Similarly, Rajeswari and Anantharaman (2005) found that strict deadlines and extended work hours lead to stress and exhaustion when examining this link with a group of software professionals. Kelloway and Day (2005) showed that improvements in job design increased organisational effectiveness and employee well being.

However, there is an increasing amount of evidence that questions this approach (Hart & Cooper, 2001). One of the main criticisms of the stressor-strain approach is the assumption that stress can be attributed to any one factor (Lazarus, 1990). Instead, it has been asserted that stress results from interactions

between many factors (e.g., Cooper & Payne, 1988). Furthermore, it does not consider the possibility of a reciprocal causal relationship, for example, an employee's level of strain may influence their reaction to a stressor (Hart & Cooper, 2001). It has also been suggested that this approach does not have a strong theoretical framework under which hypothesis-testing research can be conducted. Much of the research conducted under the framework of this approach has been criticised as being exploratory in nature and causality between stressors and strain cannot be established (Hart & Cooper, 2001).

2.3.2 Job demand-job control model

The job demand-control (JDC or DC) model (Karasek, 1979) has been described as an interactional theory of work stress as it relates to the individual's interaction with the work environment. According to this model of work stress, strain results from the combination of the effects of the demands of the work situation (stressors) and environmental moderators of stress, particularly the range of decision-making controls, or latitude available to the worker exposed to the stressor (Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981).

Strain is believed to develop when an individual is faced with a high job demand and low job control. The model suggests that a high demand job produces a state of arousal, enabling the body to respond to the demand or stressors. However, if there is environmental constraint, for example, low job control, or limited opportunities to develop new skills (Hart & Cooper, 2001), the arousal cannot then be directed into an effective coping response. Therefore,

unresolved strain accumulates and can result in various physiological and psychological ailments (Hart & Cooper, 2001). Decision latitude is thought to have more influence on the stress process than work demands (Hart & Cooper, 2001).

This model has been expanded to include social support as a key contributing factor in the work environment (Johnson & Hall, 1988). Studies have shown that jobs with high demand, low control and low support for supervisors or co-workers carry the highest risk of physical and psychological disorders (Dollard, & Winefield, 1998). Support for this model has been shown (e.g., Noblet, Rodwell, & McWilliams, 2001; O'Connor, O'Connor, White, & Bundred, 2001; Schnall, Landbergis, & Baker, 1994), and this model has been used in planning and implementing workplace interventions (Karasek, 1979).

Empirical evaluations with large-scale multi-occupational environments (Schnall et al., 1994), longitudinal studies investigating myocardial infarction and job strain (Theorell et al., 1998) and high strain, mental health and pain (Amick et al., 1998) have provided support for this model. Peeters and Rutte (2005) found partial support for this model. They investigated the interaction between time management, work demands and autonomy on feelings of burnout for a group of teachers. They found an interaction between these work conditions and feelings of emotional exhaustion.

The demand-control model has been used to explain the influence of work stress on cardiovascular disease (e.g., Johnson, Hall, & Theorell, 1989) and myocardial infarction (Hallqvist, Diderichsen, Theorell, Reuterwall, & Ahlbom,

1998), Additionally, the model has been supported by studies demonstrating the influence of work stress on job dissatisfaction and psychological consequences such as depression (Landsbergis, 1988).

Despite empirical support for the model, there have been a number of criticisms. It has been suggested that the relationship between demands and control is not as straightforward as suggested in this model. It is thought that many other variables may moderate this relationship (Salanova, Perio, & Schaufeli, 2002). Furthermore, the model has been criticised for being simple and giving insufficient attention to psychological processes (Landsbergis, 1988) Finally, tests of the model tend to be self-report measures and, therefore, reflect individual appraisals and lack objectivity (Muntaner & O'Campo, 1993). Additionally, some empirical investigations have not provided support for the model. For example, Shimazu, Shimazu and Odara (2005) examined the effects of coping on psychological distress in the context of the job demands-control-support model in a group of employees in a large electrical company in Japan. They found that job control and supervisor support did not facilitate the effectiveness of active coping.

2.4 Transactional models

Transactional models of stress (Lazarus & Folkman, 1984) assert the relevance of people's perceptions of particular stressors in the workplace and also emphasize an individual's own coping resources. This approach to the understanding of work stress suggests the development of stress depends on an individual's appraisal of the stressor and their coping abilities when faced with the stressor (Wren & Michie, 2003).

2.4.1 Effort-reward imbalance model

The effort-reward imbalance model of occupational stress (Siegrist, 1995, 1996) is a transactional theory. This model focuses on the cognitive processes and emotional reactions associated with the person's interaction with their environment. According to this model, an employee will expend effort and then expect reward which can include money, esteem or career opportunities (Peter & Siegrist, 1999). When this does not occur, or if there is a perceived imbalance between the effort expended and the reward received, then strain or stress may develop. Therefore, this imbalance is viewed as the primary source of stress (Peter & Siegrist, 1999). The model also differentiates between extrinsic efforts which are efforts made in response to the job's demands, and intrinsic efforts which refer to efforts made due to personal characteristics (Dollard, Dormann, Boyd, Winefield, & Winefield, 2003).

There is empirical support for this model. Negative changes in an individual's health have been found to be associated with effort-reward imbalance (Peter, Alfredsson, Knutsson, Siegrist, & Westerholm, 1999; Siegrist, 1996; Peter & Siegrist, 2000). Kouvonen and colleagues (2005) found that higher effort-reward imbalance and high job demands were associated with smoking. An association between negative psychological effects and imbalance has also been demonstrated (Tsutsumi, Nagami, Morimoto, & Matoba, 2002). Also, job-related factors such as sickness absence have been found to increase in people with identified effort-reward imbalance (Peter & Siegrist, 1999). van Vegchel, de Jonge, Bosma and Schaufeli (2005) conducted a review of 45 empirical

studies on the effort-reward imbalance model and they concluded that the extrinsic effort reward imbalance hypothesis had considerable empirical support. In contrast, Malinauskiene et al. (2005) found limited support for the model. They demonstrated that there was an association between low job control and risk of myocardial infarction, however, low demand rather than high demand proved to be a risk factor for 25 to 64 year old men.

A limitation of Siegrist's model is that it only predicts effects of job conditions on CHD. It does not explicitly hypothesize effects of job conditions on psychological functioning, motivation, activity, learning and coping patterns (Schnall et al., 1994).

2.4.2 Cognitive-relational approach

The cognitive-relational approach (DeLongis, Folkman, & Lazarus, 1988) is a transactional theory and suggests that stress is a multivariate process (Lazarus, 1990). Its purports that the interdependent processes of appraisal and coping mediate the relationship between a person's environment and their adaptational outcomes (Hart & Cooper, 2001). Adaption, according to this model, refers to an interplay between appraisal and coping, and it is through this process that individuals manage their environment (Hart & Cooper, 2001). So, an individual would appraise their environment, which involves the monitoring of environmental conditions, to ascertain whether it contains factors that may impact on their well-being. Furthermore, secondary appraisal takes place to determine a response when faced with potentially damaging conditions, for example, the employment of coping behaviours (Folkman & Lazarus, 1988). The assumption is that when coping efforts are not employed, stress results.

There is considerable emphasis on the role of coping resources, which are characteristics of an individual or the environment that can be drawn on in the face of stress, for example, self-esteem or social support networks (Kahn & Byosiere, 1992). It is acknowledged that although individuals may possess coping resources, due to various factors, they may not choose to employ these when dealing with stressful situations. Therefore, a distinction is made between resources and coping strategies that can be employed when faced with stress.

There is extensive research that demonstrates the use of coping strategies in dealing with stressful situations (e.g., Zeidner & Endler, 1996). However, it is acknowledged that coping behaviours are more complicated than first thought (Folkman, 1992). The cognitive-relational model has been criticised for not accounting for the role of enduring personality traits (Costa & McCrae, 1990) and emotion (Worrall & May, 1989) in the stress experience (Hart & Cooper, 2001).

2.5 Person-environment fit theory

It has been suggested that transactional models of stress have lead to the development of specific occupational stress theories such as the person-environment fit theory of occupational stress (Hart & Cooper, 2001). This theory was developed after it was recognised that person factors such as personality (Friedman & Rosenman, 1959), locus of control (Rotter, 1966), cognitive hardiness (Kobasa, 1979), and daily hassles (DeLongis, Coyne, Dakof, Folkman, & Lazarus, 1982) and work-related stressors such as role conflict, role ambiguity (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964), and role overload or underload (French & Caplan, 1972) were involved in the development of stress

and neither factor alone could account for the development of occupational stress. Occupational stress is a consequence of a lack of congruence between these two influences. Furthermore, the model differentiates between objective factors, which are either attributes of the person or the environment that exist and are measurable, and subjective factors that are perceptions that influence the way in which these attributes are interpreted by the individual (Harrison, 1978).

There has been some empirical support for this model (e.g., Chemers, Hays, Rhodewalt, & Wysocki, 1985; Edwards & Rothbard, 1999; Glowinkowski & Cooper, 1986), with research identifying factors that contribute to the development of occupational stress. However, there have been some criticisms of this model. Firstly, this theory does not recognise the role of coping efforts in managing the misfit between the person and the environment (Edwards & Rothbard, 1999). Secondly, the emphasis of the model is on the processes associated with the relationships between both the person and the environment, however, it does not specify the content of the person and environment dimensions (Campbell, Dunnette, Lawler, & Weick, 1970).

2.6 Berry's general perspective on stress

Berry (1998) provides a general perspective on stress. This model considers a variety of personal and environmental contributors to the stress process. It includes the role of particular workplace events or conditions, physiological, psychological and behavioural consequences that may ensue. Finally, Berry's model also considers the role of coping abilities in moderating the stress experience. Figure 1 presents this model.

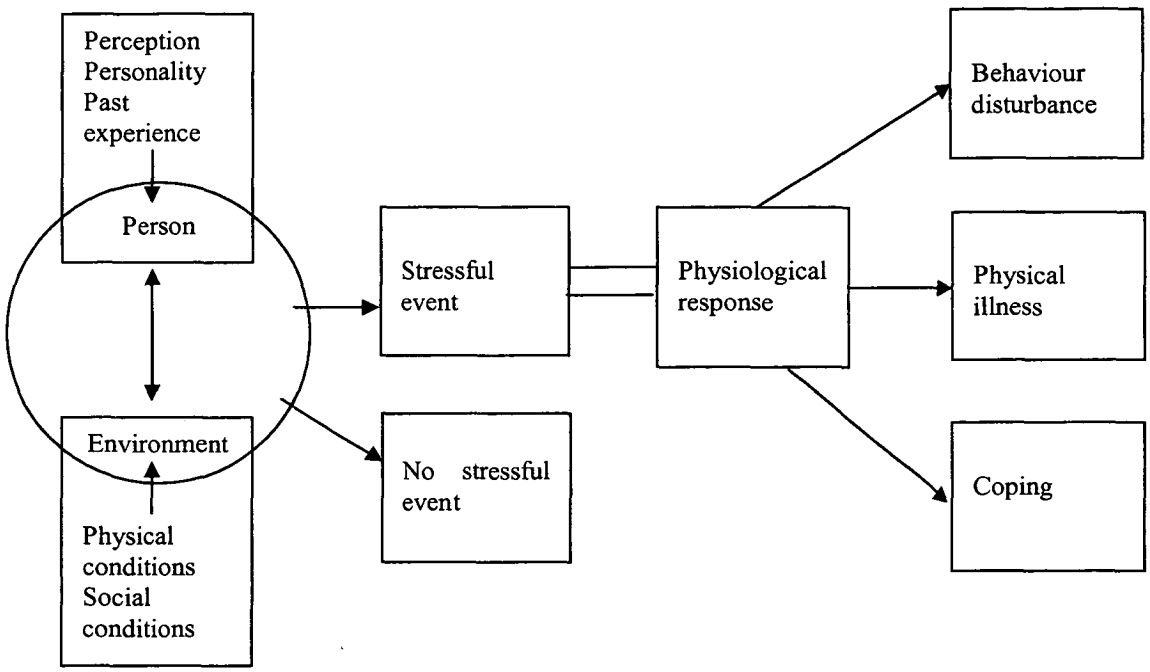

Figure 1.

Berry's model outlining a general perspective on stress (1998).

There has been an impressive amount of empirical support for the various components of this model. In relation to personal contributors, research has consistently shown that personal characteristics such as a Type A behaviour pattern, characterised by hurriedness, impatience and hostility (Hagihara et al., 1997), the endorsement of particular irrational beliefs (Davis, Robins-Eshelman, & McKay, 1995) inherent coping resources, (Hammer & Marting, 1988) and one's perceptions, for example, perceiving demand as greater than ability (Cotton, 1995), influence the stress response. Environmental contributors, such as physical conditions, or social conditions, for example, many daily irritants, have been found to result in a more negative stress response (e.g., Zohar, 1999).

The physiological response to stressors involves autonomic arousal characterised by increased heart rate and blood pressure, muscle tension and

sweating, and remaining in such a prolonged state of such activation can result in harmful physical and psychological consequences (Jex & Spector, 1996), if coping efforts are not employed. Studies examining the role of coping efforts have shown that the possession of coping resources and the employment of coping strategies can mitigate the effects of job stressors (Endler & Parker, 1990; Tillmann & Beard, 2001). For example, Begley and Boyd (1992) demonstrated that certain personal coping orientations and responses could reduce the severity of the impact of exposure to a stressor on psychological functioning because the stressful situation is perceived as less threatening. In the event that coping efforts are not employed, behavioural and physical consequences can include concentration difficulties, irritability and serious physical ailments such as those mentioned above. It is important to note that the model distinguishes between inherent coping resources as a personal contributor and the adoption coping resources as an outcome of work stress.

Additionally, exposure to workplace stressors has been shown to impact on an individual's psychological functioning providing support for this aspect of Berry's model. For example, Grunfeld et al. (2005) found that organisational change and resulting increases in workload were a major source of job stress. Tytherleigh and colleagues (2005) found that reductions in funding and job insecurity after restructuring of an organisation lowered employees' commitment to the organisation. Robinson and Griffiths (2005) found that for mental health social workers, limited decision making and excessive job demands contributed to poor job satisfaction and most aspects of burnout. Lloyd and colleagues (2005) investigated sources of stress experienced by occupational therapists and found that conflicts with other professionals were correlated with increased

stress. Heponiemi et al. (2006) examined the moderating effect of employee hostility on depression and behavioural problems. They found that employee hostility was associated with decreased psychological well-being. Indeed, there has been ample support for the various constructs of Berry's model.

It could be argued that the positioning of some of the components in the model may benefit from adjustment. So, although Berry accounts for the role of coping, she lists the adoption of coping strategies at the same level as other outcome measures such as psychological or behavioural symptoms. It may be the case that the adoption of coping strategies would be better placed before the final outcomes as coping efforts can mitigate these ultimate responses (Folkman & Lazarus, 1998).

2.7 Summary

In summary, a number of theories attempt to explain the process of the experience of workplace stress. A review of the literature indicated that whereas some models have gained considerable empirical support, criticisms tend to relate to the simplicity of these models. Many perspectives do not consider the complex nature of the development of occupational stress and the various factors which may influence the development of this condition. However, Berry's model is more comprehensive and the various components of this particular model have gained extensive empirical support suggesting the process of stress, indeed, is complex.

CHAPTER 3

STUDY ONE: RESPONSES TO STRESS AT WORK

3.1 Introduction

As previously mentioned, a variety of theoretical models and, indeed, an impressive body of research exist that attempt to explain the experience of stress. The more comprehensive models (e.g., Berry 1998) explain stress as a complex process that is influenced by a number of factors including exposure to workplace stressors and also a range of personal and environmental factors.

It has been established unequivocally that exposure to particular conditions or events in the work place can result in the development of a stress response. It is accepted that sources of stress exist in the workplace (Margolis, Kroes, & Quinn, 1974). Both organisational stressors such as restructuring or poor working conditions and interpersonal stressors such as conflict at work can lead to various outcomes including the development of physical (e.g., Rathod et al., 2000; Unden, 1996), psychological and behavioural (e.g., Doctor, Curtis, & Isaacs, 1994; Smith & de Chesnay, 1994) manifestations of stress when coping methods are not employed.

Aside from exposure to stressors, an individual may be more vulnerable to the development of occupational stress when certain personal and environmental factors are present (Berry, 1998). Personal factors such as individual's past experience, personality, inherent coping resources and perception have been examined and empirical support has been obtained for their influence on the development of occupational stress (e.g., Folkman, Lazarus, Grues, & DeLongis, 1986; Zohar, 1999). Similarly, there is empirical support for the notion that environmental contributors, that is, influences that may come from the environment outside of the workplace (e.g., Sherman & Thelen, 1998) or from

inside the workplace (e.g., Gillespie, Walsh, Winefield, Dua, & Stough, 2001), may influence the stress experience.

Although the role of stressors and personal and environmental contributors have been identified in isolation, there has not been a comprehensive examination of how personal and environmental factors may influence responses to different types of stressors. The current study attempts to provide an understanding of this matter.

3.2 Personal and environmental contributors

As previously mentioned, Berry (1998) outlined the impact of personality, perceptions and past experiences on individuals' responses to stressors. It is recognised that there is a personality component in an individual's susceptibility to workplace stressors (Lazarus, DeLongis, Folkman, & Grues, 1985). Research has demonstrated the role of personality in the experience of stress (e.g., Day & Jreige, 2002; Deary, Agius, & Sadler, 1996; Eastburg et al., 1994; Ganster, 1986; Greenglass & Burke, 2001; Perrott & Taylor, 1995; Skjorshammer & Hofoss, 1999). Personal characteristics such as a Type A behaviour pattern, which is characterised by hurriedness, impatience and hostility and the tendency to react emotionally to situations, has been shown to influence the stress response (Hagihara et al., 1997).

An individual's perceptions, for example, perceiving demand as greater that ability (Cotton, 1995) can influence the stress response. Dysfunctional attitudes such as patterns of thinking which are characterised by overgeneralisation, selective abstraction, excessive responsibility, assuming

temporal causality, self references, catastrophising and dichotomous thinking can influence reactions to stressors (Beck, 1967). The role of dysfunctional thinking in the development of occupational stress has been demonstrated (Goh & Oei, 1999; Okada & Ishikuma 1999; Thompson & Williams, 1995). Past experiences (e.g., Ellis & Harper, 1975) have also been shown to impact on the way in which an individual will react to any experience they may have, including events in their workplace.

Aside from examining the role of personality styles, there has also been some investigation of the influence of irrational thinking and the endorsement of irrational beliefs as postulated by Ellis and Harper (1975), on stress responses (Haines, Williams, Davidson, & Long, 2002; Zingle & Anderson, 1990). A study by Haines et al. (2002) demonstrated that the endorsement of irrational beliefs exacerbated levels of vocational strain in Australian teachers. Similarly, an association between endorsement of irrational beliefs and more severe work-related stress has been found among Canadian teachers (Zingle & Anderson, 1990). Furthermore, the efficacy of Rational Emotive Therapy (RET) and Rational Emotive Behaviour Therapy (REBT) in the treatment of work stress symptoms has been demonstrated (Criddle, 1993; Malkinson, Kushnir, & Weisberg, 1997) suggesting that irrational thinking plays an important role in the work stress experience. There is limited research examining whether irrational thinking differentially affects responses to conflict or specific organisational stressors at work.

Coping resources refer to dispositional factors that are available to an individual when developing or choosing a method of coping when faced with a

stressful situation (Moos & Billings, 1982). Identified as an important personal contributor, coping resources are believed to prevent the development of a range of negative occupational stress outcomes (Endler & Parker, 1990; Tillmann & Beard, 2001). For example, Begley and Boyd (1992) demonstrated that certain personal coping orientations and responses could reduce the severity of the impact of exposure to a stressor on psychological functioning because the stressful situation is perceived as less threatening. In the event that coping efforts are not employed, behavioural and physical consequences can include concentration difficulties, irritability and a range of serious physical ailments (Kanninen, Punamäki, & Qouta, 2002).

A number of studies have considered the impact of major life events on the development of work stress (e.g., Abouseire, 1996; Benishek & Lopez, 1997; Sahu & Misra, 1995; Whitehead & Ryba, 1995). The impact of major life events on the development of a stress response has been demonstrated for various occupational groups such as psychologists (Sherman & Thelen, 1998) and medical practitioners (Pradhan & Misra, 1995). Although it has been suggested that the association between life event and work stress is not as strong as once thought (e.g., Rabkin & Struening, 1976) due to the potentially mediating and moderating effects of a range of variables, there exists a considerable amount of research that has demonstrated an association between life events and the development of work stress (e.g., Arvay & Uhlemann, 1996; Benishek & Lopez, 1997; Cassidy & Burnside, 1996; Lin & Lai, 1995; Sahu & Misra, 1995; Whitehead & Ryba, 1995).

It has also been recognised that individuals may be faced with daily minor stressors or hassles defined as "irritating, frustrating, distressing demands that to some degree characterise everyday transactions with the environment" (Kanner, Coyne, Schaefer & Lazarus, 1981, p.3). Each transaction involves some degree of stress and the cumulative nature of this stress is thought to lead to negative health outcomes (McLean, 1976). A significant amount of research suggests that daily hassles are predictors of stress related symptoms (Kanner et al., 1981; Kohn, Lafreniere, & Gurevich, 1990; Stone & Neal, 1982; Zohar, 1999). Additionally, the effects of daily hassles have been shown to impact on the development of negative psychological and physical outcomes (e.g., Fry, 1995; Zohar, 1999).

It is recognised that both work and non-work roles are significant in an individual's life (Frone & Rice, 1987) and do not exist in isolation. Rather, they interact, potentially causing conflict due to competing demands (e.g., Frone, Russell, & Cooper, 1992a, 1992b). Work-family and family-work conflict has been shown to lead to specific psychological outcomes including alcohol consumption, depression and poorer physical health (Frone, Russell, & Cooper, 1997), psychological burnout (Bacharach, Bamberger, & Conley, 1991) and emotional exhaustion and depersonalisation (Burke, 1993).

In summary, there is ample evidence that has demonstrated an association between particular personal and environmental contributors that influence the development of occupational stress symptoms.

3.3 Organisational stressors and personal and environmental contributors

As previously mentioned, organisational stressors that have been found to be associated with stress and that are intrinsic to the job include long hours, work overload, time pressure, difficult or complex tasks, lack of breaks, lack of variety, unclear work roles and poor physical conditions at work. Additionally, organisations throughout the private and public spheres have undergone significant changes due to extensive downsizing, restructuring, and mergers creating job insecurity (Greenglass, Burke, & Fiskenbaum, 2001). The psychological and medical implications of job insecurity have been documented (e.g., Catalano, Rook, & Dooley, 1986; Dekker & Schaufeli, 1995; Ferrie, Shipley, Marmot, Stansfeld, & Smith, 1998; Roskies & Louis-Guerin, 1990). Job insecurity has been found to result in an increase in medical consultations and psychological distress (Roskies & Louis-Guerin, 1990), impacting on physical health (Maurier, & Northcott 2000; Roskies & Louis-Guerin, 1990), negative work behaviour and attitudes (Roskies & Louis-Guerin, 1990), a reduction in job commitment and productivity at work (Greenhalgh, 1982; King, 2000) and turnover intentions (Barling & Kelloway, 1996).

Greenglass and Burke (2001) examined the effects of restructuring experienced by hospital-based nurses in terms of reported stress and burnout levels. The study included both job-related outcomes such as job satisfaction and burnout, and psychosomatic outcomes such as depression. Results showed that, in hospitals undergoing restructuring, workload is the most significant and consistent predictor of distress in nurses, as manifested in lower levels of job satisfaction, professional efficacy, and job security.

Some demographic differences have been identified. In relation to sex differences and differences in relation to position at work, Yawen, Chun-wan, Chiou-Jong and Tung-liang (2005) found that the deleterious effects of job insecurity appeared to be stronger in men than women, in women who held managerial or professional jobs than women in other employment grades, and in those working in larger companies than smaller ones.

In relation to personal and environmental contributors and specific organisational stressors, there has been a limited amount of empirical investigation. Personal contributors such as Type A personality have been associated with work overload (Burke & Weir, 1980), role ambiguity and role conflict (Jamal 1990). A study by Mazur and Lynch (1989) investigated the role of teacher's personality characteristics and found that organisational stress factors such as work overload, support, and isolation were significant predictors of teacher burnout. However, there was also a link between personality characteristics, such as anomie, personality Type A or B, and empathic self-concept and indicators of occupational stress such as burnout.

In relation to environmental factors, stressful work events, both global (e.g., Deckard & Present, 1989; Tetrick, 1992) and specific stressors (e.g., Haines et al., 2002), have been identified as being associated with the development of occupational stress responses. Good work environments are characterised by factors such as challenges, safety, participation, pleasant surroundings, feeling valued, role clarity and empowerment, whereas poor environments involve high levels of work hazard and feelings of devaluation (Meleis, Messias, & Arruda, 1996). Other work factors that lead to stress include

workload, education and training issues, professional isolation, lack of support (Dua, 1996), dissatisfaction with professional life and perceived work productivity (Revicki & May, 1983). Tewksbury and Higgins (2006) asserted that research has well established the influence of the work environment variables on the experience of job stress for correctional officers. Their own research demonstrated the influence of role conflict, emotional dissonance, and task control on the experience of work stress.

There has been some research that has investigated coping strategies that are used when individuals are faced with organisational stressors. For example, Litchfield and Gow (2002) conducted a study to determine how problem-focused and emotion-focused coping strategies mediated various forms of strain. They found that correlations between individuals with more role overload, responsibility and role boundary stressors experienced more physical strain, psychological strain, vocational strain and interpersonal strain and that the increased use of problem-focused coping decreased psychological strain, whereas the increased use of emotion-focused coping increased psychological strain.

In summary, there is an impressive amount of research that has demonstrated the negative effects of exposure to organisational stressors on employee health. Furthermore, there is some evidence to suggest an association between particular personal and environmental contributors on the development of work stress when individuals are exposed to organisational stressors.

3.4 Interpersonal conflict and personal and environmental contributors

A review of the literature indicates that, in comparison to the amount of literature relating to the impact of organisational stressors, there is a limited about of research that has focused on the impact of interpersonal conflict at work. It has been suggested that organisations are inherently prone to conflict and this stems from competition over scarce resources and differences of opinion (Hamilton, 2000) although this prominent cause of stress appears to be less often acknowledged in workplaces than are other sources of stress. Certain factors at work, such a hectic workplace, monotonous work and white-collar status are thought to influence the likelihood of workplace conflict (Appelberg, Romanov, Honkasalo, & Koskenvuo, 1991).

High rates of interpersonal conflict are thought to occur in the workplace (Bolger, DeLongis, Kessler, & Schilling, 1989; Smith & Sulsky, 1995) and may be increasing in incidence (Lawrence, 2002). The results from some studies have suggested that interpersonal stress may be more likely for some occupational groups than others. For example, Rainey (1995) found that conflict was a common stressor for umpires. Similar results have been found for secretaries (Peeters, Buunk, & Schaufeli, 1995), teachers (Kelly & Berthelsen, 1995; Whitehead & Ryba, 1995) and nurses (Hillhouse & Adler, 1997; Tyler & Cushway, 1995).

Interpersonal conflict at work has been shown to result in negative psychological consequences (e.g., Frone, 2000; Lin & Lai, 1995; Peeters et al., 1995; Rainey, 1995; Richardson et al., 1992). Interpersonal conflict at work has been shown to precipitate psychological symptoms of burnout (Hillhouse &

Adler, 1997; Richardson et al., 1992), psychological distress (Lin & Lai, 1995) and symptoms of depression (Eells, Lacefield, & Maxey, 1994). Interpersonal conflict at work can result in job-related or organisational outcomes. For example, lower levels of commitment to the organisation (Barling & Phillips, 1993; Leather, Beale, Lawrence & Dickson, 1997), more absenteeism (Barling & Phillips, 1993), and greater turnover intentions (Donovan, Drasgow, & Munson, 1998) all have been reported as consequences of interpersonal conflict at work.

Interestingly, it has been determined that interpersonal stressors are particularly likely to generate anxiety symptoms that carry over from work to home (Doby & Caplan, 1995). It has been suggested that interpersonal conflict may represent a more severe stressor in the workplace than other types of stressors (Hahn, 2000).

The relationship between demographic factors and conflict at work has also been examined. Appelberg and colleagues (1991) found that more conflicts are evident in the younger age groups and among men. There are also studies that suggest that interpersonal conflict at work predicted work disability only among women (Appelberg et al., 1991), suggesting that interpersonal conflict is more stressful for women than for men (e.g., Appelberg et al., 1996; Hutri & Lindeman, 2002).

There has also been some examination of the role of the person with whom the conflict is occurring (e.g., Berryman-Fink & Brunner, 1987; Duane 1989). Frone (2000) investigated whether the outcomes of interpersonal conflict at work were influenced by the parties with whom conflict was occurring and found that conflict with supervisors is predictive of organisationally relevant psychological

outcomes (poor job satisfaction, low organisational commitment, and high turnover intentions), whereas conflict with co-workers is predictive of personally relevant psychological outcomes (depression, low self-esteem, and somatic symptoms) with no sex differences being apparent. Other studies also have shown that the psychological impact of conflict can vary depending on with whom an individual is in conflict (e.g., Fujiwara, Tsukishima, Tsutsumi, Kawakami, & Kishi, 2003).

There has been some investigation into the relationship between personal contributors to work stress and interpersonal conflict at work. Greenglass and Burke (2001) found that dissatisfaction with life, daily stress, neuroticism and hostility were found to be the significant risk factors for interpersonal conflicts at work for both sexes, whereas a higher educational level was a considerable risk factor only for men, and low self-assurance for women. Hershcovis and colleagues (2007) conducted an investigation of the contributions of individual and situational factors in explaining interpersonal aggression and confirmed that both individual and situational factors predict aggression. Additionally, high levels of trait anger have been found to be associated with increased frequency of conflict situations (Brondolo et al., 1998).

In reviewing the literature in this area, it becomes clear that the most common methodology being utilised is retrospective in nature and questionnaires have been used to gain information about individuals' experience of stress. Furthermore, the populations utilised in most studies tend to be employees who are currently in the workforce and who have not been identified as being clinically occupationally stressed.

Nevertheless, there is ample evidence that indicates an association between exposure to organisational or interpersonal stressors and the development of occupational stress symptoms. Additionally, the influence of personal and environmental factors has also been identified. However, as yet, there has not been a direct and comprehensive comparison of the influence of personal and environmental contributors along with coping efforts on the development of stress, depending on the type of stressor with which the individual is faced. The current study aimed to investigate these variables.

3.5 The current study

Berry's model was used to provide structure to this investigation. The purpose of research to date primarily has been to examine different occupational groups to determine the influence of specific occupational stressors (e.g., Anderson et al., 1996) or the buffering effects of workplace characteristics on the relationship between workplace stressors and psychological or job-related outcomes (e.g., NIOSH, 1999). It has yet to be determined if organisational and interpersonal stressors have a differential impact on psychological and job-related outcomes and if these stressors are differentially influenced by personal and environmental factors.

By comparing responses on measures of psychological functioning, job performance, and job satisfaction personal characteristics and environmental conditions in the workplace, to directly investigate potential differences between individuals exposed to organisational stress compared with those facing interpersonal conflict at work, it is expected that the results of these

investigations can be used to direct and target workplace and clinical intervention.

In addition, to address the lack of research in this area with clinical populations, the current study also included a comparison of responses for the abovementioned factors of individuals who were identified as clinically stressed with those who remained in the workplace and who were not identified as a clinical population.

It was hypothesised that the clinical group compared with the non-clinical group as well as the interpersonal conflict group compared with the organisational stress group would demonstrate:

1) Less frequent possession and employment of adaptive coping resources
2) A greater number of physical and psychological symptoms of stress
3) More frequent visits to GP's and other treating professionals
4) Greater use of leave to deal with symptoms of stress
5) Greater use of EAP services to deal with stress symptoms
6) A higher endorsement of personal beliefs that have been shown to predispose feelings of stress and distress
7) A greater vocational, physiological, interpersonal, and physical strain caused by exposure to stressors
8) A poorer work environment
9) Lower job satisfaction

3.6 Method

3.6.1 Participants

Participants were divided into a clinical group (n= 31) and a non-clinical group (n=325) based on self-reported symptoms of occupational stress that would be regarded as clinically significant. Participants from the clinical group were recruited from Tasmanian public and private sector employees. Participants were recruited after advertisements were placed in local newspapers as well as at various locations around the University of Tasmania Hobart Campus. Written informed consent was gained by these participants and the information sheet for the study and consent form can be found in Appendix A. The clinical group was further divided into those who reported interpersonal conflict as a precipitant to their stress response (n=19) and those who reported an organisational or work-related stressor (n=12).

Participants from the non-clinical group were public sector employees in Tasmania. Data was collected as part of a larger study examining occupational stress in Tasmanian Public Sector employees. This data collection was approved by the University Human Ethics Committee. Participants were further divided into an organisational stress group (n=232) and an interpersonal conflict group (n=93) based on the self-report of the nature of occupational stressor experienced. Cases exposed to serious organisational stressors (e.g., restructuring, reclassification of position) and those reporting a serious conflict with a colleague or supervisor were selected for the current study.

3.6.2 Materials

A questionnaire was developed to obtained information related to personal demographic information and employment demographic information. The questionnaire also addressed the nature of work stressors to which the participants were exposed to which was used to group participants into either the interpersonal conflict group or the organisational group. It elicited information about the use of leave opportunities as a way of managing work related stress symptoms. Finally, the questionnaire obtained information related to use of medical and professional services such as general practitioners and employee assistance programs. This questionnaire is presented in Appendix C.

Personal influences

The Coping Resources Inventory (Hammer & Marting, 1988) was used to identify the range of inherent and external coping resources available to each participant to cope with daily challenges. The scale provided a total score, and scores for five subscales. Items are rated from 'N'= never to 'S'= sometimes, 'O' = often, 'A'= Always. The Cognitive subscale measured positive feelings towards oneself and others in a general optimistic attitude. The Social subscale assessed the social support network of the individual. The Emotional subscale measured the individual's acceptance and expression of affect, behaviours which have been seen to reduce the long-term effects of stress. The Spiritual/Philosophical subscale measured religious, familial, cultural and personal philosophies, and assessed the extent to which an individual's thoughts and actions were influenced by a solid value base, which assisted with coping with stress. The Physical subscale assessed the extent to which the individual

engaged in health-promoting behaviour, as such behaviours have been demonstrated to reduce responses to stress and promote recovery from stress. Cronbach's alpha coefficients for internal consistency for each subscale were as follows: Cognitive .77; Social .79; Emotional .84 Spiritual/Philosophical .84, and Physical .71. The coefficient for the total scale was .91 (Hammer & Marting, 1988).

The Belief Scale (Malouff & Schutte, 1986) was administered to determine the extent of endorsement of beliefs that have been shown to predispose feelings of stress and distress. The items on scale are endorsed on 7-point Likert-scale, from Strongly Agree (7) to Strongly Disagree (1). It is recognised that it has been suggested that all measures of irrational beliefs need further psychometric work. However, this and other tests of irrational beliefs all have been reported to have excellent face validity (Woodward, Carless, & Findlay, 2001).

The Personal Resources Questionnaire of the Occupational Stress Inventory (Osipow & Spokane, 1992) provides subscale scores for recreation, self-care, social support and rational/cognitive coping. Items are responded to on a 5-point rating scale the frequency of a stress-related event, from rarely (1) to most of the time (5). This was used as a measure of coping resources. The alpha coefficient for internal consistency as a measure of reliability was .99.

Environmental contributors

The Work Environment Scale (Insel & Moos, 1974) is a measure of 10 stressful aspects of the work environment. The Work Environment Scale was used to access the range of social environments of different work settings

experienced by participants. Items are responded to on a true or false basis. The WES measures three dimensions of the work environment; the Relationships dimension, Personal Growth dimension and the System Maintenance and System Change dimension. Each dimension is comprised of a number of subscales. The Relationship dimension includes Involvement, Peer Cohesion, and Supervisor Support. The Personal Growth dimension includes Autonomy, Task Orientation and Work Pressure. The System Maintenance and System Change dimension incudes Clarity, Control Innovation and Physical Comfort. Participants responded to each item in the item booklet and entered their answers on a separate response sheet. Raw scores were transformed to standard scores. Standard scores relevant to general work settings were used for conversion. The internal consistencies for each of the ten subscales range from 0.69 for Peer Cohesion to 0.86 for Innovation. These were considered to be in an acceptable range (Moos, 1981). Test–retest reliabilities range from 0.69 for Clarity to 0.83 for Involvement. Again, these were considered to be in the acceptable range (Moos, 1981).

Sources of stress

The Occupational Roles Questionnaire of the Occupational Stress Inventory (Osipow & Spokane, 1992) was used as a measure of the nature of work-related stressors. The Occupational Stress Inventory (OSI; Osipow & Spokane, 1992) was used to measure the level of occupational adjustment experienced by each individual. The inventory measured three dimensions of occupational adjustment, occupational stress, psychological strain, and coping resources. Each dimension was composed of a number of subscales. The

occupational stress dimension was measured by a set of six subscales which are collectively called the Occupational Roles Questionnaire (ORQ). The ORQ scales are Role Overload, Role Insufficiency, Role Ambiguity, Role Boundary, Responsibility, and Physical Environment. Items are responded to on a 5-point rating scale the frequency of a stress-related event, from rarely (1) to most of the time (5).The internal consistency of the ORQ was determined to be .89 with alpha coefficients ranging from .64 for Responsibility to .88 for Role Insufficiency. The validity of the scale has been demonstrated by a range of factor analytic studies, correlational studies, and outcome studies (Osipow & Spokane, 1992).

Outcomes

The Symptom Checklist-90-R (SCL-90-R) (Derogatis, 1992) was administered to evaluate levels of symptomatology and is a measure of psychological adjustment and distress. The SCL-90-R consists of 90 items and assesses a range of psychological symptoms. Participants indicate on a 5-point scale (0=not at all, 4 = extremely) the extent to which they have been distressed of troubled by each symptom within the past seven days. Subscales of the SCL-90-R measure Somatization (S), Obsessive-compulsive (OC), Interpersonal Sensitivity (IS), Depression (D), Anxiety (Anx), Hostility, Phobic-Anxiety (PA), Paranoid Ideation (PI), and Psychoticism (Psy).

The SCL-90-R also provides a Global Severity Index (GSI), Positive Symptom Total (PST), and a Positive Symptom Distress Index (PSDI). The GSI is a single summary score of the current level of symptomatology that is derived by combining information regarding the number of items endorsed and the

degree of distress experienced by the individual. The PSDI provides a measure of perceived distress that is separate from the number of items endorsed. The PST is a measure of the extent of symptomatology by scoring the number of items endorsed by the individual. Seven additional items that are not included in the primary symptom dimensions are included in the calculation of the global indices. The symptoms measured by these additional items are related to multiple symptom dimensions but are not exclusive to any one dimension.

Internal consistency of the nine symptom dimensions ranges from .77 for Psychoticism to .90 for the Depression subscale. This has indicated that symptom items do reflect the measurement dimension or underlying factor. In addition, test-retest reliability has ranged from .80 for the Anxiety subscale to .90 for Phobic Anxiety, indicating stability over time. Convergent and construct validation research has demonstrated that the SCL-90-R is a good measure of current symptomatology (Derogatis, 1977).

The SCL-90-R was designed to provide a measure of 'caseness'. The GSI or two or more dimension scores equal to or greater than a standard score of 63 have been considered to indicate a positive diagnosis or case (Derogatis, 1977).

The Personal Strain Questionnaire of the Occupational Stress Inventory (Osipow & Spokane, 1992) was used as a measure of the vocational, psychological, interpersonal and physical strain caused by exposure to work-related stressors. The Personal Strain Questionnaire of the OSI (Osipow & Spokane, 1992) was administered as measure of outcome. The Personal Strain Questionnaire provides subscale scores of vocational strain, psychological strain, interpersonal strain and physical strain. Items are responded to on a 5-point

rating scale the frequency of a stress-related event, from rarely (1) to most of the time (5). An analysis of internal consistency produced an alpha coefficient of .94 for this questionnaire.

Job satisfaction was measured by a single Visual Analogue Scale (VAS) measuring global satisfaction with the job. The VAS was anchored with the words "Completely dissatisfied" and "Completely satisfied" providing a score from 0 to 100. The VAS was scored out of 100, with higher scores representing a more positive experience. VAS have been established as valid and reliable in a range of clinical and research applications (McCormack, de Horne, & Sheather, 1988).

3.6.3 Procedure

Questionnaire packages were forwarded to Human Resource Departments of all major Tasmanian Government agencies to be distributed to selected occupational groups within the agencies that represented the major occupational groups within the State public sector. Questionnaires were returned to the researchers directly through the mail or to a collection point within the agency through internal mail systems. From this data, people who had experienced a significant organisational stressor or a serious interpersonal stressor were identified. Data from individuals who had been identified as having clinically significant occupational stress was also included and these individuals were grouped into the clinical group. Participants were divided into an interpersonal conflict or organisational group based on self-reports of the workplace stressor that they had been exposed. Questionnaires were completed independently and

returned to the researcher, in person for the clinical group, and by mail for the non-clinical group.

3.6.4 Design

This investigation involved a four group questionnaire study. The independent variables were stressor group (organisational or interpersonal conflict) and clinical and non-clinical status. The dependent variables were measures of personal contributors, environmental contributors and outcomes.

3.6.5 Data analysis

Analyses of variance (ANOVA) and Fisher LSD post hoc analyses were performed examining between group differences for the variables in each aspect of the model.

3.6.6 Ethical considerations

Data sharing is ethically acceptable providing that data ownership is determined prior to sharing and the results of the analyses do not repeat already published material. Neither of these conditions was breached.

3.7 Results

3.7.1 Demographic and work factors

There was no overall difference between groups in relation to the sex of the participants and type of stressor with 46.8% of the organisational group being

males and 53.8% of the interpersonal group being female, χ^2 (12, N = 355) = 7.1, p >.05. In relation to the non-clinical group who were in the organisational stress group, 47.2% were males and 52.8% were females. The non-clinical interpersonal group comprised of 48.4% males and 51.6% females. For the clinical organisational group, 66.7% were males and 33.3% were females. In the clinical interpersonal group, 21.1% were males and 78.9% were females.

There was a significant age difference, $F(3,342) = 4.5$, $MSE = 462.8$, p <.05. The non-clinical organisational group (M = 37.8, SD = 10.3) was significantly younger than all of the other groups, that is, the interpersonal group in the non-clinical sample (M = 40.4, SD = 9.8) and the interpersonal (M = 45.3, SD = 10.0) and organisational (M = 43.7, SD = 9.4) groups in the clinical sample.

There were no group differences in terms of marital status, $\chi^2(9, N = 350) = 13.4$, p >.05. However, there was a significant group difference in educational level, $\chi^2(12, N = 347) = 23.0$, p <.03. It was found that in the non-clinical organisational group, fewer people than expected had a tertiary level of education. In fact, more people in this group than would be expected had a high school level of education as their highest educational qualification. It was also found that for the clinical interpersonal conflict group, more people than would be expected had a tertiary level of education. Table 1 presents the percentage of each group in each marital status and educational category.

Table 1. Percentage of participants from each group in the marital status and educational categories.

Variable	Level	Organisational		Interpersonal	
		Non Clinical	Clinical	Non Clinical	Clinical
Marital status	Never married	21.7	8.3	13.2	29.4
	Married/cohabiting	69.6	58.3	75.8	58.8
	Separated/divorced	7.8	33.3	9.9	11.8
	Widowed	0.9	0.0	1.1	0.0
Educational level	No high school	3.5	8.3	8.7	0.0
	High school	31.4	8.3	19.6	11.8
	Matriculation	17.7	0.0	13	5.9
	Trade	6.2	8.3	8.7	5.9
	Tertiary	41.2	75	50	76.5

Consideration was given to duration of employment. There were significant differences between the non-clinical organisational group (M = 154.0, SD = 154.2) and clinical organisational group (M = 241.3, SD = 139.9) and the clinical interpersonal group (M = 254.7, SD = 119.2) in the number of months employed, $F(3,341)=3.9$, MSE = 78087.7, $p<.001$. The non-clinical organisational group were employed for a shorter amount of time than the clinical organisational group and clinical interpersonal group. There was also a significant difference between the non-clinical interpersonal group (M = 162.4,

SD = 109.8) and the clinical interpersonal group (*M* = 54.7, *SD* = 119.2) where the non-clinical interpersonal group reported less time employed than the clinical interpersonal group.

There were no significant differences between the non-clinical organisational group (*M* = 56.2, *SD* = 114.2), the non clinical interpersonal group (*M* = 64.5, *SD* = 61.7), the clinical organisational group (*M* = 68.0, *SD* = 56.8) or the clinical interpersonal group (*M* = 87.2, *SD* = 94.9) in relation to the amount of time employed in their present positions, *F* (3,344) = 0.6, *MSE* = 6146.8, *p* >.05. There were no significant differences between the non clinical and clinical groups in relation to whether they were full time or part time employees, $\chi^2(3, N = 336) = 0.3$, *p* >.05. Within the non-clinical organisational group, 90.9% were full-time employees and 9.1% were part-time employees. The non-clinical interpersonal group consisted of 89.8% full-time employees and 10.2% were part-time employees. Within the clinical organisational group, 91.7% were full-time employees while 8.3% were part-time employees. The clinical interpersonal group consisted of 87.5% full-time employees and 12.5% were part-time employees.

3.7.2 Personal influences

Consideration was given to individual factors that may influence the experience of stress at work. Table 2 presents the mean scores and standard deviations for the Beliefs Scale, the Coping Resources Inventory and the Personal Resources Questionnaire of the OSI. There were significant differences between groups on the level of endorsement of irrational beliefs, *F*(3,332) = 12.0, *MSE* = *1440.2*, *p* <.0001. As can be seen from means and standard deviations

presented in Table 2, the non-clinical organisational group reported significantly greater irrational belief endorsement than both the clinical interpersonal group (*Fisher LSD = 5.6, p* <.05) and the clinical organisational group (*Fisher LSD = 7.3, p* <.05). Additionally, the non-clinical interpersonal group reported significantly higher irrational belief endorsement that both the clinical interpersonal group (*Fisher LSD = 5.8, p* <.05) and the clinical organisational group (*Fisher LSD = 7.5, p* <.05).

There were significant differences between the groups for emotional coping resources, $F(3,323) = 2.1$, *MSE* = 297.5, *p* <.05, where the non-clinical organisational group reported more of these coping resources than the clinical organisational group (*Fisher LSD = 7.2, p* <.05). Additionally, the non-clinical interpersonal group reported more of these coping resources than the clinical organisational group (*Fisher LSD = 7.4, p* <.05). There was also a significant difference within the clinical group where the interpersonal group reported more emotional coping resources than the organisational group (*Fisher LSD = 0.9, p* <.05). There were no significant differences between the groups for spiritual/philosophical coping resources, $F(3,322) = 0.2$, *MSE = 17.1, p* >.05, physical coping resources, $F(3,323) = 0.6$, *MSE = 41.8, p*>.05, or social coping resources, $F(3,323) = 1.9$, *MSE = 173.3, p* >.05. In the case of cognitive coping resources, significant differences were noted, $F(3,323) = 5.8$, *MSE = 595.1, p* <0007. The non-clinical organisational group reported significantly more cognitive coping resources than the clinical organisational group (*Fisher LSD = 6.2, p* <.05). In addition, the difference in cognitive coping resources between the non-clinical interpersonal group and the clinical organisational group was

significant with the non-clinical interpersonal group reporting more of this resource (*Fisher LSD = 6.4, p* <.05).

There were significant differences between the groups for personal resources. As can be seen from the means and standard deviations presented in Table 2, the clinical interpersonal conflict group reported fewer recreation resources than the non-clinical organisational group, $F(3,320) = 5.3$, *MSE = 562.0*, $p < .05$, (*Fisher LSD = 5.4*, $p < .05$) and the non-clinical interpersonal group (*Fisher LSD = 5.7*, $p < .05$). There were no group differences noted for self-care, $F(3,320) = 0.4$, *MSE = 41.4*, $p > .05$, or rational/cognitive strategies, $F(3,319) = 0.5$, *MSE = 57.1*, $p < .05$. Additionally, the clinical interpersonal conflict group reported less social support than the non-clinical organisational group, $F(3,319) = 3.3$, *MSE =404.5*, $p < .05$, (*Fisher LSD = 5.8*, $p < .05$) and the non-clinical interpersonal group (*Fisher LSD = 6.1*, $p < .05$).

Table 2. The mean scores and standard deviations for the two groups for the personal factors.

Scale	Subscale	Organisational				Interpersonal			
		Non Clinical		Clinical		Non Clinical		Clinical	
		M	SD	M	SD	M	SD	M	SD
Beliefs		57.8	11.2	47.2	12.9	56.2	10.1	42.4	11.1
Coping Resources Inventory	Emotional	49.9	12.1	40.8	9.1	49.3	11.5	50.8	11.4
	Spiritual/ philosophy	42.1	9.1	41.1	8.1	42.8	8.7	41.9	6.3
	Physical	47.4	8.0	44.1	10.7	47.4	8.0	48.1	7.9
	Cognitive	48.5	10.1	36.6	10.5	46.9	10.2	43.5	9.6
	Social	44.1	9.3	37.2	9.2	44.3	10.1	44.0	12.0
Personal Resources Questionnaire	Recreation	47.7	10.3	45.6	9.2	46.9	9.8	36.7	13.7
	Self Care	43.9	9.6	47.5	9.9	44.6	9.5	43.4	14.6
	Social Support	46.8	10.9	40.5	14.0	47.4	10.6	39.1	15.4
	Rational/ Cognitive Coping	47.2	9.8	43.2	6.8	48.0	10.7	47.1	15.1

3.7.3 Environmental influences

Consideration was given to environmental influences inside the workplace on the development of work stress. Table 3 presents the mean scores and

standard deviations for the subscales of the Work Environment Scale for the two groups.

When the work environment was considered, there were group differences for peer cohesion, $F(3,331) = 3.9$, $MSE = 1487.9$, $p < .05$, staff support, $F(3,330) = 6.4$, $MSE = 1892.9$, $p < .0003$ and work pressure, $F(3,330) = 3.2$, $MSE = 942.9$, $p < .05$. In relation to peer cohesion, the non-clinical organisational group obtained a higher score than both the non-clinical interpersonal group (*Fisher LSD* = 4.8, $p < .05$) and the clinical interpersonal group (*Fisher LSD* = 11.0, $p < .05$). In relation to staff support, the non-clinical organisational group obtained a higher score than both the non-clinical interpersonal group (*Fisher LSD* = 4.2, $p < .05$) and clinical interpersonal group (*Fisher LSD* = 9.7, $p < .05$). In addition, the non-clinical interpersonal group also reported higher scores than the clinical interpersonal group (*Fisher LSD* = 10.0, $p < .05$). In relation to work pressure, the non-clinical organisational group obtained a lower score than both the clinical organisational group (*Fisher LSD* = 10.9, $p < .05$) and the clinical interpersonal group (*Fisher LSD* = 9.6, $p < .05$). Additionally, the non-clinical interpersonal group obtained significantly lower scores than both the clinical organisational group (*Fisher LSD* = 11.3, $p < .05$) and the clinical interpersonal group (*Fisher LSD* = 10.0, $p < .05$).

No group differences were evident for autonomy, $F(3,331) = 1.2$, $MSE = 357.4$, $p > .05$, task orientation, $F(3,331) = 1.7$, $MSE = 498.3$, $p > .05$, clarity, $F(3,330) = 1.6$, $MSE = 1330.4$, $p > .05$, innovation, $F(3,330) = 1.7$, $MSE = 446.1$, $p > .05$, or physical comfort, $F(3,330) = 0.2$, $MSE = 71.3$, $p > .05$, involvement,

$F(3,330) = 2.4$, $MSE = 692.1$, $p > .05$ and control, $F(3,330) = 2.5$, $MSE = 628.5$, $p > .05$.

Table 3. The mean scores and standard deviations for the two groups for the Work Environment Scale.

Scale	Organisational				Interpersonal			
	Non Clinical		Clinical		Non Clinical		Clinical	
Involvement	50.2	16.6	40.4	17.9	45.6	17.5	48.5	15.2
Peer cohesion	47.7	18.8	38.8	19.3	42.6	20.5	32.5	23.8
Staff support	45.4	16.5	35.8	20.8	40.2	18.7	27.3	14.4
Autonomy	50.5	17.2	46.3	19.5	47.7	17.7	43.7	15.5
Task orientation	53.5	17.1	49.5	15.0	49.5	16.6	46.6	20.4
Work pressure	63.3	17.6	74.5	11.5	62.0	17.0	73.9	14.2
Clarity	46.0	32.8	37.6	12.7	41.6	18.6	31.2	18.6
Control	52.4	15.1	41.6	14.4	52.1	16.9	44.1	19.0
Innovation	46.0	15.9	40.1	17.0	42.2	16.2	40.1	17.0
Physical comfort	47.0	18.5	46.0	20.4	45.8	17.8	49.5	19.5

3.7.4 Work stressors

Examination was made of group differences in general work stressors. Table 4 presents the mean scores and standard deviations of the Occupational Role Questionnaire subscales of the Occupational Stress Inventory. There were significant group differences in relation to the role overload subscale, $F(3,327) = 6.6$, $MSE = 771.3$, $p < .05$. The clinical interpersonal group obtained a higher score than both the non-clinical organisational group (*Fisher LSD = 5.7*, $p < .05$) and the non-clinical interpersonal group (*Fisher LSD = 5.9*, $p < .05$). There were

also group differences in relation to the role insufficiency subscale, $F(3,326) = 5.3$, $MSE = 486.5$, $p < .05$, where the non clinical organisational group obtained lower scores than both the non clinical interpersonal group (*Fisher LSD = 2.4*, $p < .05$) and the clinical organisational group (*Fisher LSD = 6.4*, $p < .05$). Additionally, the non-clinical interpersonal group obtained a lower score than the clinical organisational group (*Fisher LSD = 6.6*, $p < .05$).

Group differences were also noted for the role ambiguity subscale, $F(3,326) = 4.6$, $MSE = 388.3$, $p < .05$. The non-clinical organisational group yielded a significantly lower score than the clinical interpersonal group (*Fisher LSD = 4.8*, $p < .05$). In addition the non-clinical interpersonal group obtained a lower score than the clinical interpersonal group (*Fisher LSD = 5.0*, $p < .05$).

Significant differences were found between the groups for the role boundary subscale, $F(3,326) = 8.2$, $MSE = 794.2$, $p < .05$. The non-clinical organisational group obtained lower scores than the non-clinical interpersonal group (*Fisher LSD = 2.4*, $p < .05$), the clinical organisational group (*Fisher LSD = 6.6*, $p < .05$) and the clinical interpersonal group (*Fisher LSD = 5.2*, $p < .05$).

Group differences were also noted for the responsibility subscale, $F(3,326) = 4.9$, $MSE = 651.6$, $p < .05$. The non-clinical interpersonal group obtained higher scores than the non-clinical organisational group, (*Fisher LSD = 2.8*, $p < .05$). Additionally, the clinical interpersonal group obtained a significantly higher score than the non-clinical organisational group, (*Fisher LSD = 6.0*, $p < .05$).

A group difference was also noted for the physical environment subscale, $F(3,324) = 3.7$, $MSE = 503.9$, $p < .05$, where the non clinical interpersonal group

obtained a higher score than the non-clinical organisational group (*Fisher LSD* = *6.3*, $p < .05$).

Table 4. The mean scores and standard deviations for the Occupational Roles Questionnaire of the Occupational Stress Inventory.

Scale	Organisational				Interpersonal			
	Non Clinical		Clinical		Non Clinical		Clinical	
	M	SD	M	SD	M	SD	M	SD
Role overload	47.9	10.6	51.8	8.6	49.4	10.8	60.5	15.1
Role insufficiency	49.4	9.3	59.2	12.6	52.6	9.7	53.3	11.4
Role ambiguity	51.1	8.8	54.9	12.2	52.8	9.0	59.5	13.2
Role boundary	51.0	9.4	59.3	9.3	55.2	9.6	59.8	16.1
Responsibility	47.9	11.6	54.8	11.3	51.5	11.2	56.7	12.6
Physical environ.	52.3	10.9	50.0	5.3	56.7	13.6	56.9	13.0

3.7.5 Outcomes

Outcomes of the experience of work stress were examined in terms of the presence of stress responses, psychological symptomatology and job satisfaction. Table 5 presents the mean scores and standard deviations for the groups for these outcome measures. With regard to the OSI subscales, there were group differences for psychological strain, $F(3,318) = 13.9$, $MSE = 1795.9$, $p = .0001$, interpersonal strain, $F(3,318) = 6.7$, $MSE = 663.1$, $p = .0002$, and the vocational strain subscale, $F(3,318) = 7.9$, $MSE = 1071.8$, $p = .0001$. In relation to psychological strain, the non-clinical organisational group obtained lower scores than the non-clinical interpersonal group (*Fisher LSD = 2.8*, $p < .05$) the clinical organisational group (*Fisher LSD = 8.0*, $p < .05$) and the clinical interpersonal group (*Fisher LSD = 6.0*, $p < .05$). Additionally, the non-clinical interpersonal

group obtained lower scores than both the clinical organisational group (*Fisher LSD = 8.2, p* <.05) and the clinical interpersonal group (*Fisher LSD = 6.2, p* <.05).

In relation to interpersonal strain, the non-clinical organisational group obtained a lower score that the non-clinical interpersonal group (*Fisher LSD = 2.5, p* <.05) and the clinical interpersonal group (*Fisher LSD = 5.2, p* <.05). Also, the non-clinical interpersonal group obtained a lower score than the clinical interpersonal group (*Fisher LSD = 5.5, p* <.05). In relation to the vocational strain subscale, the non-clinical organisational group obtained a lower score than both the clinical organisational group (*Fisher LSD =8.2, p* <.05) and the clinical interpersonal group (*Fisher LSD = 6.4, p* <.05). Additionally, the non-clinical interpersonal group obtained a lower score than both the clinical organisational group (*Fisher LSD = 8.5, p* <.05) and the clinical interpersonal group (*Fisher LSD = 6.4, p* <.05).

With regard to psychological symptomatology, group differences were evident for somatisation, $F(3,319) = 7.7$, $MSE = 919.1$, $p = .0001$, obsessive-compulsive, $F(3,320) = 8.2$, $MSE = 950.4$, $p = .0001$, interpersonal sensitivity, $F(3,319) = 6.2$, $MSE = 670.0$, $p = .0004$, depression, $F(3,319) = 8.5$, $MSE = 1173.4$, $p = .0001$, anxiety, $F(3,319) = 6.9$, $MSE = 952.1$, $p = .0002$, phobic anxiety, $F(3,319) = 3.5$, $MSE = 253.7$, $p < .05$, hostility, $F(3,319) = 4.4$, $MSE = 409.5$, $p < .05$, paranoid ideation, $F(3,319) = 8.5$, $MSE = 913.4$, $p = .0001$, and psychoticism, $F(3,319) = 5.2$, $MSE = 524.4$, $p < .05$, subscales and the GSI, $F(3,319) = 8.8$, $MSE = 1229.6$, $p = .0001$, the PST, $F(3,319) = 4.8$, $MSE = 565.1$, $p < .05$, and PSDI, $F(3,319) = 13.2$, $MSE = 1255.6$, $p = .0001$.

In relation to the somatisation subscale the non-clinical organisational group obtained a lower score than both the clinical organisational group (*Fisher LSD = 7.8, p* <.05) and the clinical interpersonal group (*Fisher LSD = 5.8, p* <.05). Additionally, the non-clinical interpersonal group obtained a lower score than both the clinical organisational group (*Fisher LSD = 7.9, p* <.05) and the clinical interpersonal group (*Fisher LSD = 6.0, p* <.05).

This was also the case for the obsessive-compulsive subscale. The non-clinical organisational group obtained a lower score than both the clinical organisational group (*Fisher LSD = 7.2, p* <.05) and the clinical interpersonal group (*Fisher LSD = 5.7, p* <.05). Additionally, the non-clinical interpersonal group obtained a lower score than both the clinical organisational group (*Fisher LSD = 7.4, p* <.05) and the clinical interpersonal group (*Fisher LSD = 5.9, p* <.05).

In relation to the interpersonal sensitivity subscale, the non-clinical organisational group obtained a lower score than both the non-clinical interpersonal group (*Fisher LSD = 2.6, p* <.05) and the clinical interpersonal group (*Fisher LSD = 5.5, p* <.05). For the subscale of depression, the non-clinical organisational group obtained a lower score than the non-clinical interpersonal group (*Fisher LSD = 2.9, p* <.05), the clinical organisational group (*Fisher LSD = 7.9, p* <.05) and the clinical interpersonal group (*Fisher LSD = 6.2, p* <.05). Additionally, the clinical interpersonal group obtained higher scores than the non-clinical interpersonal group (*Fisher LSD = 6.5, p* <.05). Additionally, the clinical organisational group obtained higher scores than the non-clinical interpersonal group (*Fisher LSD = 8.1, p* <.05).

In relation to anxiety, the clinical interpersonal group obtained a higher score than both the non-clinical interpersonal (*Fisher LSD = 6.5, p* <.05) and the non-clinical organisational group (*Fisher LSD = 6.2, p* <.05). In relation to the phobic anxiety scale, the clinical interpersonal group obtained a higher score than both the non-clinical organisational group (*Fisher LSD = 4.5, p* <.05) and non clinical interpersonal group (*Fisher LSD = 4.7, p* <.05).

In relation to the hostility subscale, the clinical interpersonal group obtained a higher score than the non-clinical organisational group (*Fisher LSD = 5.1, p* <.05). Additionally, non-clinical interpersonal group obtained a higher score that the non-clinical organisational group (*Fisher LSD = 2.4, p* <.05). In relation to paranoid ideation, the clinical interpersonal group obtained a higher score than the non-clinical organisational group (*Fisher LSD = 5.4, p* <.05). Additionally, the non-clinical interpersonal group obtained a higher score than the non-clinical organisational group (*Fisher LSD = 2.6, p* <.05). Also, the clinical interpersonal group obtained a higher score than both the non-clinical interpersonal group and the clinical organisational group (*Fisher LSD = 5.7, p* <.05).

For the psychoticism subscale, the clinical interpersonal groups obtained a higher score than the non-clinical organisational group (*Fisher LSD = 5.3, p* <.05*)*. Also, non-clinical interpersonal group obtained a higher score than the non-clinical organisational group (*Fisher LSD = 2.5, p* <.05*)*. Additionally, the clinical interpersonal group yielded a higher score than the non-clinical interpersonal group (*Fisher LSD = 5.5, p* <.05*)*.

In relation to the GSI, the non-clinical organisational group obtained a lower score than the non-clinical interpersonal group (*Fisher LSD = 2.9, p* <.05), the clinical interpersonal group (*Fisher LSD = 6.2, p* <.05) and the clinical organisational group (*Fisher LSD = 7.9, p* <.05). Additionally, the clinical organisational group obtained a higher score that the non-clinical interpersonal group (*Fisher LSD = 8.1, p* <.05). Also, the clinical interpersonal group obtained a higher score that the non-clinical interpersonal group (*Fisher LSD = 6.5, p* <.05). In relation to the PST, the clinical interpersonal group obtained a higher score than the non-clinical groups interpersonal group (*Fisher LSD = 6.0, p* <.05) and the non-clinical organisational group (*Fisher LSD = 5.7, p* <.05).

Finally, in relation to the PSDI, the clinical organisational group obtained a higher score that the non-clinical organisational group (*Fisher LSD = 6.5, p* <.05). Additionally, the clinical interpersonal group obtained a higher score that the non-clinical organisational group (*Fisher LSD = 5.1, p* <.05). Also, the clinical interpersonal group obtained a higher score than the non-clinical interpersonal group (*Fisher LSD = 5.4, p* <.05). The clinical organisational group also obtained a higher score than the non-clinical interpersonal group (*Fisher LSD = 6.7, p* <.05).

No group differences were evident on the measure of job satisfaction with both groups reporting moderate levels of job satisfaction, $F(3,331) = 2.5$, *MSE* =1 778.2, $p > .05$.

Table 5. The mean scores and standard deviations for the two groups for the outcome measures.

Scale	Subscale	Organisational				Interpersonal			
		Non Clinical		Clinical		Non Clinical		Clinical	
		M	SD	M	SD	M	SD	M	SD
Occupational Stress Inventory	Vocational strain	49.8	11.3	66.6	10.0	50.8	11.6	59.0	16.1
	Psycholog. strain	49.2	10.6	61.6	10.0	52.7	12.1	66.5	16.9
	Interperson. Strain	48.4	9.1	54.1	9.8	51.1	10.6	59.0	15.5
SCL-90-R	Somatisation	53.4	10.8	64.8	9.0	54.6	10.7	65.0	14.9
	Obsessive-compulsive	55.8	11.0	67.4	9.2	57.4	10.1	67.2	12.0
	Interpersonal Sensitivity	55.8	10.8	61.0	8.6	58.7	9.4	66.4	11.6
	Depression	55.1	11.8	70.3	11.1	58.9	11.4	64.3	13.4
	Anxiety	52.2	11.6	60.0	9.2	53.3	12.0	65.4	13.3
	Hostility	52.1	9.6	57.6	9.3	55.3	9.8	58.7	10.5
	Phobic anxiety	50.1	8.2	55.2	10.2	49.9	8.4	56.3	11.8
	Paranoid ideation	52.0	9.9	53.4	10.2	56.9	10.5	62.8	14.8
	Psychoticism	56.2	9.9	55.4	10.1	56.2	9.9	63.6	10.4
	GSI	53.9	12.0	66.2	7.6	57.2	11.7	66.7	12.1
	PST	54.1	11.4	59.6	10.9	56.8	9.7	63.7	10.5
	PSDI	50.9	10.0	62.9	7.2	53.2	9.7	64.6	8.0
Job Satisfaction Scale		62.7	25.7	52.9	25.8	56.8	28.6	47.5	32.5

3.7.6 Dealing with stress at work

Examination was made of the actions taken by participants to deal with their stressful work experiences. Significantly more of the clinical interpersonal group (40.9%) than the clinical organisational group (20.2%) consulted their general practitioner because of stress at work, $\chi^2(9, N = 338) = 182.1$, $p = .0001$. Within the non-clinical organisational group, 20.2 % consulted their GP. The non-clinical interpersonal group, 40.9% consulted their GP. In the clinical organisational group, 90.9% consulted their GP. In the clinical interpersonal group, 87.5% of people consulted their GP.

Consideration was given to the types of leave used in an attempt to alleviate work stress. Table 6 presents the percentage of each group reporting the use of each type of leave. Significantly fewer of the non-clinical organisational group took leave than was expected. Conversely, the clinical interpersonal conflict group took significantly more sick leave than would be expected, $\chi^2(3, N = 337) = 19.6$, $p = .0002$. Additionally, significantly more of the clinical organisational group took long service leave than was expected to cope with their stress at work. There were no differences between groups in the proportion of participants who used recreational leave, $\chi^2(3, N = 339) = 7.5$, $p > .05$, to cope with stress.

Table 6. The percentage of each group who used each of the types of leave to alleviate work stress symptoms.

Type of leave	Organisational		Interpersonal	
	Non Clinical	Clinical	Non Clinical	Clinical
Sick leave	23.0	41.7	32.3	73.3
Recreation/annual leave	18.3	33.3	31.2	31.2
Long service leave	3.2	25.0	5.4	6.2

Consideration was given to the availability and use of a counsellor at an employee assistance program available and the lodgement of a workers' compensation claim. Table 7 presents the percentage of each group reporting the use of this service and the lodgement of a compensation claim. There was a significant difference in the percentage of participants who had a counsellor at an employee assistance program available to them, χ^2 (6, N = 337) = 98.2, p =.0001. The clinical samples from both the organisational and interpersonal groups reported significantly less availability of this service than would be expected.

There was a significant difference in the percentage of participants who consulted a counsellor at an employee assistance program to cope with work stress $\chi^2(3, N = 327) = 19.1, p = .0003$. Significantly more of the clinical organisational group used this service and significantly less of the non-clinical organisational group used this service.

There were significant differences between the groups in the proportion of participants who had lodged a workers' compensation claim for psychological

injury at work, $\chi^2(3, N = 3\ 38) = 28.2, p = .0001$ It was apparent that significantly more of the clinical sample from both the organisational and interpersonal groups lodged a claim compared with the non-clinical sample from both the organisational and interpersonal groups.

Table 7. The percentage of each group who used employee assistance services and who lodged a compensation claim.

EAP & Compensation Behaviour	Organisational		Interpersonal	
	Non Clinical	Clinical	Non Clinical	Clinical
EAP service availability	57.8%	36.4%	52.7%	33.3%
Use of EAP service	7.0%	36.4%	11.4%	33.3%
Compensation claim lodged	5.5%	33.3%	8.7%	37.5%

3.8 Discussion

The purpose of this study was to determine whether organisational and interpersonal stressors have a differential impact on psychological and job-related outcomes and whether personal and environmental factors influence outcomes, depending on the nature of the stressor. Additionally, a comparison was made between clinically stressed and non-clinically stressed individuals in relation to these variables. Responses on measures of psychological functioning, job performance, personal characteristics and environmental conditions in the workplace were analysed to determine differences between individuals exposed to organisational stress compared with those facing interpersonal conflict at work.

In relation to demographic comparisons, the results suggested that sex was not associated with either of the two stressor types and also did not appear to affect whether an individual was clinically stressed or not. Previous studies have shown inconsistencies between sex and occupational stress with some research suggesting that the condition is not linked to sex (Marini, et al., 1995; Smith, Brice, Collins, Matthews & McNamara, 2000) whereas others indicate a stronger relationship for women (e.g., Licht 2000; Stokes, Riger, & Sullivan, 1995) for reasons such as conflict between work, and family pressures (Lundberg & Frankenhaeuser, 1999). Nevertheless, the current study suggests that there is no link between sex and occupational stress, nor was there a relationship between sex and type of stressor. That is, both women and men did not significantly differ in the their propensity to develop occupational stress and did not differ in their exposure to either organisational stressors or interpersonal conflicts at work.

It was evident that there was some association between age and organisational stressors with the non-clinical organisational group being the youngest of all the other groups. These results suggest that older employees may be more inclined to become embroiled in conflict and may also be more likely to develop clinically significant stress. It has been suggested that older people enjoy greater autonomy in their work due to their broader professional experience and tend to report less often than their younger colleagues that they worry about the consequences of a mistake. It has also been found that older employees report less conflict, either in their relations with the public or with colleagues (Guignon & Pailhe, 2004). However, the current study suggests this may not necessarily be the case. It would be reasonable to suggest older employees would be more likely

to occupy more senior positions on the whole. Guignon and Pailhe (2004) also suggests that, in some case, individuals in more senior positions may be vulnerable to becoming involved in interpersonal conflicts

It appeared that there was no association between marital status and the development of clinically significant stress. Additionally, there appeared to be no association between marital status and the type of stressor to which an individual was exposed. Previous literature investigating the influence of marital status on the development of work stress has been inconsistent. Some studies have suggested a possible link between marital status and occupational stress (e.g., Calnan, Wainwright, Forsythe, Wall, & Almond, 2001; Smith et al., 2000) due to factors such as clashes between the demands of work and home (e.g., Phillips-Miller, Campbell, & Morrison, 2000). However, also it has been proposed that spouses or partners may moderate the demands placed on the individual at work by providing support (e.g., Long & Gessaroli, 1989). The current study demonstrated that, overall, there were no significant differences in marital status in relation to the development of clinically significant occupational stress and results did not support a vulnerability on the basis of marital status to react to a particular type of stressor.

There was evidence to suggest an association between education and interpersonal stressors. The percentage of people from the non-clinical organisational group who had a high school level of education was greater than expected, whereas the percentage of people in the clinical interpersonal group who had a tertiary level of education was greater than expected. As previously

stated, it has been argued that educational level or specific type of education or training does not protect people from the development of work-related stress responses (Carson et al., 2003) and the findings from the current study support this notion.

However, the results from the current study also seem to suggest that tertiary educated individuals are prone to being involved with interpersonal stressors and to becoming clinically stressed. This finding may be reflective of the differences in working conditions faced by individuals who have had a higher level of education and are presumably in positions with a higher level of responsibility. Responsibility has been shown to impact on the development of stress (e.g., Laubach, Milch, & Ernst, 1999). In relation to a tendency to become involved in interpersonal conflict, it may be that individuals in higher paid positions may be involved in the managing of subordinates and this may also increase the likelihood of being exposed to interpersonal difficulties. Other research has demonstrated the link between educational qualifications/level and job satisfaction. Kirkcaldy, Cooper, Furnham, and Brown (1993) found that job satisfaction, especially satisfaction with personal relationships at work, as well as satisfaction with the organisational structure, was lowest for the most highly educated personnel for a group of senior police officers.

There was evidence to suggest that duration of employment impacts upon the development of clinical stress, regardless of the type of stressor faced. Previous research also has noted the link between duration of employment and occupational stress (Dignam, Barrera, & West, 1986; Kirkcaldy & Siefen, 1991).

These findings suggest that the longer an employee has remained in the workforce, the more likely they are to develop clinically significant stress symptoms. This may be simply a result of having a longer exposure to stressors.

There was no significant difference between those individuals who were employed on a full time or part time basis in terms of clinically significant occupational stress, consistent with previous research with an Australian sample (Carson et al., 2003). Some have suggested that there may be a greater risk of developing stress with full-time employment than part-time employment (Lynch, 1999; Smith et al., 2000). However, it has also been suggested that changing working hours from full-time work to part-time work may reflect an attempt on the part of the employee to fulfil other needs rather than a stress-reduction strategy (e.g., Lee, MacDermid, & Buck, 2002).

Consideration was given to individual factors that may influence the experience of stress at work. The role of inherent coping resources was investigated. It was found that individuals who were faced with organisational stressors who had not been identified as clinically stressed, reported more emotional coping resources and cognitive coping resources than the clinically stressed individuals who were faced with organisational stressors. This finding suggests that when faced with organisational stressors, the use of emotion focused coping resources, which involves attempts to regulate negative emotional reactions to the stressor, as well as cognitive coping resources are useful in mitigating the effects of the development of clinical stress. Other studies have demonstrated that particular coping resources may be more useful than others in the face of particular stressors at work (e.g. Terry, Tonge, &

Callan, 1995). It may be that a combination of emotion focused coping and cognitive focused coping is most beneficial when dealing with organisational stressors.

Within the clinically stressed group, the individuals who were faced with interpersonal conflict reported more emotional coping resources than the individuals who were faced with organisational stressors. Additionally, there was evidence to suggest that the clinically stressed individuals who were faced with organisational stressors had fewer cognitive coping resources that those non-clinical individuals who were faced with interpersonal conflict. There were no differences for spiritual/philosophical, physical or social coping resources.

The role of coping in the face of stressors has been demonstrated previously and it is believed that individuals who possess coping resources through problem-solving efforts should be able to transform or compensate for stressors that they cannot avoid (Thoits, 2006). The current study provided further evidence for the mitigating effects of the employment of coping resources in the development of clinical stress. It was also evident that the presence of emotion and cognitive focused resources were particularly useful in preventing the development of a clinical response when facing organisational stressors.

It was found that individuals who had not been deemed to be clinically stressed had a higher level of irrational belief endorsement compared with the clinical groups, regardless of the type of stressor they faced. Previous literature has suggested that endorsement of specific irrational beliefs predisposes an individual to the experience of stress because of the negative interpretation placed on life events by such individuals (e.g., Dyck, 1992). However, the

current study did not support a link between these factors, similar to another study utilising an Australian sample (Carson et al., 2003). These findings suggest that although irrational belief endorsement influences the stress response due to the way individuals interprets events, there may be other factors that more strongly contribute to the severity of the stress experience.

When the work environment was considered, there were group differences for peer cohesion, staff support and work pressure. Those individuals who had not been identified as clinically stressed and who were faced with organisational stressors reported more peer cohesion than individuals who were faced with interpersonal stressors, in both the clinically stressed and non-clinical sample. It would not be unusual to find that cohesion among colleagues would be less apparent in workplaces where employees are involved in interpersonal conflict. Research has demonstrated that the effects on interpersonal conflict at work extend to other employees who may not be directly involved in the interpersonal conflict (Cram & MacWilliams, 2007) leading to a generally unpleasant work environment with fear and distrust becoming the norm.

There was evidence to suggest that individuals who were faced with organisational stressors and who did not have clinical stress were afforded more staff support than both clinically stressed and not clinically stressed individuals who experienced interpersonal conflict at work. In addition, there was evidence to suggest that those individuals who had not been identified as having occupational stress as a result of conflict at work were provided with higher levels of staff support than workers who did develop occupational stress after interpersonal conflict. It has been established that lack of support is detrimental

to the wellbeing of employees (McCalister, Dolbier, Webster, Mallon, & Steinhardt, 2006) and the results of the current study support this notion. It appears that staff support is a critical mitigating factor in preventing the development of a stress response, specifically for individuals who are involved in interpersonal conflict. It was also evident that individuals who were involved with interpersonal conflict were less likely to receive staff support than those who were experiencing organisational stressors. So, despite the importance of staff support when there is interpersonal conflict, the nature of this type of workplace stressor prevents this support from being readily provided.

Many studies have suggested that the presence of social support can lessen or even eliminate the deleterious effects of stress (e.g., Frese, 1999). However, other studies have suggested that the buffering effects of social support are present only with regard to mental and physical health variables such as anxiety, depression, irritation, and somatic symptoms and not for job-related strains such as job dissatisfaction, boredom and dissatisfaction with work load (LaRocco, House, & French, 1980). Nevertheless, the importance of social support has been noted and the current study provides support for this.

It was clear that individuals facing organisational stress and who had not developed clinical stress were faced with less work pressure and less work overload compared with individuals who had been deemed clinically stressed regardless of the type of stressor they were facing, identifying a strong association between the development of clinical stress as a result of work pressure and excessive workload, regardless of the predominant stressor involved. It has been suggested that work stress develops because excessive

demands at work lead to difficulties prioritising work activities and communicating with colleagues (Styhre et al., 2002). Recent statistics have suggested that workload pressures account for 37% of work related stress claims and almost half of the claim costs in this area (WorkCover Corporation of South Australia, 1999). Indeed, previous research has established that excessive work pressure and workload can result in the development of clinically significant stress (Carayon, Yang, & Lee, 1995; Sparks & Cooper, 1999) and the current study provided further support for this notion.

There were no significant differences between the groups in relation to autonomy, task orientation, clarity, innovation, physical comfort, involvement or control at work, or job satisfaction. Autonomy at work has been found to improve job satisfaction (Flanagan & Flanagan, 2002; Steel, 2001) and decrease work stress (Buessing & Glaser, 2000). It has been determined that low autonomy, task orientation, clarity, innovation, and physical comfort can lead to feelings of emotional exhaustion, symptomatic of occupational stress (Constable & Russell, 1986).

In relation to work stressors, individuals who were not clinically stressed and who faced organisational stressors had a less of an issue with role insufficiency than both the non-clinically stressed individuals who were faced with interpersonal conflict and the clinically stressed individuals who were faced with organisational stressors. In addition, clinically stressed individuals who were faced with organisational stressors had more difficulty with role insufficiency than the non-clinically stressed individuals who were faced with interpersonal conflict. The current findings suggest that role insufficiency is an important

contributor to the development of a clinical stress response, regardless of the whether the individual is involved in interpersonal conflict or not. However, it appears to be a particularly important contributing factor in the development of a clinical response for those individuals who are faced with organisational stressors. This is not surprising given that role insufficiency is a sign that work-related tasks are unsatisfactory.

It was found that individuals who had been identified as clinically stressed as a result of interpersonal conflict at work reported more concerns regarding role ambiguity, role boundaries and responsibility than the clinically stressed individuals who were confronted with organisational stressors. Role ambiguity and role boundary issues have previously been found to contribute to the development of work stress and illness (e.g., Dunnette, 1998). It is plausible that the development of clinical symptoms associated with interpersonal workplace conflict is likely to occur in workplaces where there are unclear work roles and excessive responsibility. Although concerns regarding role boundaries, role ambiguity and excessive responsibility also contribute to the development of a clinical response for those individuals facing organisational stressors, it appears that these conditions in the workplace create the impetus for an added stressor of interpersonal conflict to occur.

On measures of physical environment, the individuals who were not clinically stressed but were confronted with interpersonal conflict appeared to have to deal with concerns in the physical environment such as high levels of noise, moisture, dust, heat, having an erratic work schedule or feeling personally isolated more so than the individuals who faced organisational stressors but who

were not clinically stressed. This finding indicates that although an uncomfortable or problematic work environment does not necessarily lead to the development of clinical symptoms, it can increase the likelihood of interpersonal conflicts occurring, possibly due to factors such as competition over work space or being in uncomfortable or unpleasant conditions at work which may cause employees to be in a generally unpleasant mood. Indeed, it could be argued that unpleasant work environments are in fact a 'breeding ground' for interpersonal conflicts to occur.

Outcomes of the experience of work stress were examined in terms of the presence of stress responses, which were measured by feelings of interpersonal, psychological and vocational strain. The results from this study supported previous findings that have demonstrated that there is a link between exposure to workplace stressors and psychological strain, vocational strain and interpersonal strain (e.g., Litchfield & Gow, 2002). It was apparent that the non-clinical organisational group had the lowest levels of psychological strain and vocational strain of all the groups and, in general, the clinical groups reported the highest levels of strain in comparison with the non-clinical groups, which was not unexpected.

In relation to psychological symptomatology, there was evidence to suggest that regardless of the type of stressors faced, clinically stressed individuals reported higher levels of obsessive compulsive and somatisation symptoms and overall psychological distress, consistent with previous research (e.g., Armstrong-Stassen, 1997; Havlovic, Bouthillette & van der Wal, 1998; Lin & Lai, 1995).

However, particular psychological symptomatology that was associated with the experience of interpersonal conflict was interpersonal sensitivity, depressive symptoms, anxiety, phobic anxiety, hostility, paranoid ideation and psychoticism. In addition, in the majority of cases, clinically stressed individuals facing conflict reported a higher level of symptomatology that non-clinically stressed individuals facing conflict. Previous research has demonstrated the relationship between interpersonal conflict at work and a negative psychological response (e.g., Frone, 2000; Lin & Lai, 1995; Peeters at al., 1995). The experience of interpersonal conflict also has been associated with specific psychological outcomes such as burnout (Hillhouse & Adler, 1997; Rainey, 1995), psychological distress (Lin & Lai, 1995), poor mental well-being (Tyler & Cushway, 1995), and depressive and other symptomatology (Eells et al., 1994). The results of the current study provide strong evidence for the notion that the experience of interpersonal conflict is associated with a greater level of negative psychological symptomatology than exposure to organisational stressors, with a more pronounced effect for clinically stressed individuals, as would be expected.

In relation to overall psychological distress, individuals who were faced with organisational stressors and who were not clinically stressed reported the lowest levels of distress than each of the other groups, which is not unexpected. In relation to the number of self-reported symptoms, it was evident that individuals who were faced with interpersonal conflict and were clinically stressed reported a greater number of symptoms than both the non-clinically stressed groups. In relation to the intensity of overall distress, both the clinical groups reported greater distress than individuals who were faced with organisational stressors and who were not clinically stressed. Additionally, it

appeared that clinically stressed groups, regardless of the stressor type that they are exposed to, experienced a higher level of intensity of symptoms than those individuals who were faced with interpersonal conflict and who were not clinically stressed.

No significant group differences were evident on the measure of job satisfaction with all groups reporting moderate levels of job satisfaction which was inconsistent with previous research that has demonstrated a link between job dissatisfaction and interpersonal conflict (Donovan et al., 1998; Leather et al., 1997). The current study indicates that the level of job satisfaction did not significantly differ as a function of the type of stressor to which the worker was exposed. However, it has been argued that job satisfaction is measurable on more than one dimension (Porat, 1981). It has been postulated that job satisfaction constitutes a variety of domains that influence how well an individual enjoys their job. So, it may be that the single, global measure of job satisfaction is failing to address the potential situation that one group may be more satisfied or dissatisfied with one area compared with another.

Examination was made of the actions taken by participants to deal with their stressful work experiences. Significantly more of the interpersonal group than the organisational group consulted their general medical practitioner (GP or family doctor) because of stress at work. It was also found that individuals who are clinically stressed and facing interpersonal conflict utilised more sick leave whereas individuals who were clinically stressed as a result of exposure to organisational stressors utilised long service to cope with their stress at work. There has been some suggestion that individuals may utilise sick leave as a

strategy for dealing with occupational stress and then lodge a workers' compensation claim for psychological injury (Dollard, Winefield, & Winefield, 1999). It may be that in order to access sick leave entitlements, these individuals were required to visit GPs more frequently.

The importance of the employee assistance program was noted. It was evident that, in general, the clinical groups did not have employee assistance services available to the same degree as the non-clinical groups. The use of employee assistance programs has been shown to result in significant declines in absenteeism, the utilisation of sickness benefits, work-related accidents and workers' compensation claims (The Substance Abuse and Mental Health Services Administration [SAMSHA], 1995). The current study provides further evidence for the importance of employee assistance services in the prevention and management clinically significant occupational stress. It was also found that when the service was made available, more of the clinically stressed individuals facing organisational stressors used the counsellors than the non-clinical organisational group. Of course, it would be expected that individuals who had developed clinical symptoms as a result of exposure to stressors would be likely to seek assistance in this regard.

In relation to lodgement of a workers' compensation claim, it was clear that more of the clinically stressed individuals lodged a claim compared with individuals who had not developed the clinical condition, which was not unexpected. Previous studies have shown that individuals who lodge compensation claims often report clinically significant anxiety and distress (Haines et al., 2002). Of course, a number of other factors aside from the actual

psychological injury have been found to influence the decision to lodge a workers compensation claim. For example, it has been found that acute stressors compared with chronic stressors may be less likely to be disputed (Haines et al., 2002) and this may influence whether an individual decided to lodge a claim after exposure to such a stressor.

In summary, the experience of interpersonal conflict at work differs in a number of ways compared with the experience of organisational stressors. Furthermore, the role of personal and environmental contributors also has a differential impact, depending on the nature of the stressor involved. Finally, it appears that particular coping efforts are employed more and are more effective depending on whether an individual is faced with interpersonal stressors or organizational stressors.

CHAPTER 4

STUDY TWO: PSYCHOLOGICAL AND PSYCHOPHYSIOLOGICAL REPONSES TO STRESS

4.1 Introduction

An examination of stress related literature has shown self-report questionnaires have been the dominant methodology used for empirical investigations of the stress experience (Bruning & Frew, 1987; Burke, 1987; Fried, Rowland, & Ferris, 1984; Frone, 2000; Lin & Lai, 1995; Peeters et al., 1995; Rainey, 1995; Richardson et al., 1992). Indeed, the usefulness of obtaining information by use of self-report measures has been noted (Lester, Nebel, & Baum, 1994). However, the limitations of questionnaire methodologies have also been identified (e.g., Balick & Herd, 1987; Cox & Ferguson, 1994). For example, it has been determined that the stress process is a complex one that involves psychophysiological, cognitive, emotional and behavioural responses (Berry 1998; Steptoe, 1991). Additionally, it has been suggested that objective indicators of occupational stress are necessary to avoid participant bias (Balick & Herd, 1987; Cox & Ferguson, 1994; Lester et al., 1994)

Some studies have employed psychophysiological methodologies to measure the stress experience which have provided evidence to suggest particular events in a workplace, either interpersonal or organisational in nature, produce a physiological stress response (e.g., Jorna, 1993; Kalimo, Harju, Leskinen, & Nykyri, 1992; Roscoe, 1993; Wilson, 1993). However, as yet, there has been no direct comparison of the physiological stress responses for individuals who have been exposed to interpersonal conflict at work compared with exposure to organisational stressors. It would be worthwhile to compare both psychophysiological and psychological responses to both interpersonal and

organisational stressors to determine whether the personal nature of interpersonal conflict translates to a more severe stress experience than organisational stressors.

4.2 Psychophysiological measurement of stress

There are numerous empirical investigations that have used self-report questionnaires to demonstrate the negative effects of exposure to workplace stressors (e.g., Barling & Kelloway, 1996; Bruning & Frew, 1987; Burke, 1987; Dekker & Schaufeli, 1995; Fried et al., 1984; Frone, 2000; Lin & Lai, 1995; Peeters et al., 1995; Rainey, 1995; Richardson et al., 1992; Roskies & Louis-Guerin, 1990). As stated, the usefulness of obtaining information by use of self-report measures has been noted (Lester et al., 1994). However, there have also been criticisms of the use of questionnaires (e.g., Lester et al., 1994) or, at least, sole reliance on questionnaire data to understand responses to stressful work events. Lester and colleagues (1994) suggested that objective measurements of the stress experience, such as psychophysiological reactions, are necessary in empirical research because psychophysiological measures cannot be influenced by participant bias, at least not to the same extent as subjective measures such as would be the case with questionnaires. Psychophysiological measures are believed to provide a more accurate measure of the nature and severity of the occupational stress experience (Ballick & Herd, 1987). The importance of an individual's psychophysiological reaction when faced with stressors has been recognised by Berry (1998) and also others (Steptoe, 1991).

The importance of examining psychological responses to stressors at the time they occur should not go un-noted. It has been acknowledged that

individuals may not recognise alterations in their psychophysiological arousal as soon as they occur and may then rate their psychological response accordingly (Brain, Haines & Williams, 1998). Therefore, it is important to investigate both psychological and psychophysiological response to stressors (Balick & Herd, 1987; Burke, 1987; Davidson, Fleming & Baum, 1987; Ganster, Mayes, Sime, & Tharp, 1982; O'Keeffe & Baum, 1990) in order to gain a comprehensive understanding of the stress experience.

Studies have demonstrated a relationship between psychophysiological arousal and work-stress for specific occupational groups such as bus drivers (Evans & Carrere, 1991), fire-fighters (Lim, Ong & Phoon, 1987) and pilots (Tattersall & Hockey, 1995). Significant differences in psychophysiological arousal have been determined for individuals on working days compared with days when they are not working. General cardiovascular responses to events at work have been demonstrated (Lundberg et al., 1999; Steptoe, Roy, & Evans, 1996). In addition, blood pressure has been found to be lower on non-work days than work days (Goldstein, Shapiro, Chicz-DeMet, & Guthrie, 1999), indicating that aspects of the work experience are associated with increased arousal levels. Occupational stress research has demonstrated a relationship between exposure to stressors at work and blood pressure (Hutt & Weidner, 1993; Sausen, Lovallo, Pincomb, & Wilson, 1992), muscle tension (Gomer, Silverstein, Berg, & Lassiter, 1987) and heart rate (Sausen et al., 1992; Siegrist & Klein, 1990). Clearly, there is a link between psychophysiological arousal and work stress.

4.2.1 Organisational stressors

There has been some research examining psychophysiological reactions to specific organisational stressors. For example, cardiovascular reactions have been demonstrated in response to specific work situations (Bohlin, Eliasson, Hjemdahl, Klein & Frankenhaeuser, 1986; Dolan, Sherwood, & Light, 1992), and high workload (e.g., Jorna, 1993; Roscoe, 1993; Wilson, 1993). Increased levels of catecholamines, blood pressure, and heart rate have been found to be associated with perceived stress. Additionally, both physical and psychosocial work conditions may induce physiological stress and muscle tension (Schultz, Kirschbaum, Prusner, & Hellhammer, 1998). Other investigations have demonstrated a link between psychophysiological responses and hot working conditions in fire fighting exercises (Smith et al., 1995).

The chronic effects of workplace noise on blood pressure and heart rate have also been investigated and significant results yielded (Lusk, Hagerty, Gillepsie, & Caruso, 2002). Based on the notion that exposure to noise acts as a stressor activating physiologic mechanisms that, over time, can produce adverse health effects, it was found that although all of the effects and mechanisms are not clearly elucidated, noise may elevate systolic blood pressure, diastolic blood pressure and heart rate, thus producing both acute and chronic health effects.

There is more support for the link between particular workplace conditions and physiological measures of stress. A relationship was found between stressful work conditions and diastolic blood pressure among blue-collar men employed in similar occupational settings (Matthews, Cottlington, Talbott, Kuller, & Siegel, 1987). The researchers found six out of fifteen stressful work

conditions, as well as overall job dissatisfaction, were significant predictors of an elevation in diastolic blood pressure, even after controlling for age, body mass index, alcohol consumption, cigarette smoking habits, family history of hypertension, and severe noise-induced hearing loss. Men with elevated diastolic blood pressure reported having little opportunity for promotion and for participating in decisions at work, an uncertain job future, unsupportive coworkers and foremen, difficulties communicating with others, and overall dissatisfaction with the job. Additionally, it was found that overall job satisfaction was related to low diastolic blood pressure among men who had been rated as having overall good work conditions.

In summary, exposure to poor workplace conditions including low job control and job uncertainty has been associated with negative psychophysiological reactions such as elevated heart rate and increased blood pressure.

4.2.2 Interpersonal stressors

There has been some research that has investigated psychophysiological reactions to interpersonal conflict at work. Psychophysiological reactivity to interpersonal conflict has been demonstrated using simulated activities or laboratory tasks. For example, the relationship between women's subjective, emotional discomfort with anger and cardiovascular responses to stress was considered in one study (Lavoie, Miller, Conway, & Fleet, 2001). Cardiovascular and affective responses were examined during two anger-provoking conditions; one in which anger was in self-defence, and one in which anger was in defence of a significant other. Women reported feeling equally

angry, annoyed and irritated during their respective anger-provocation conditions. However, when defending themselves, they reported significantly greater increases in feelings of depression and guilt during anger provocation relative to when defending a friend. Furthermore, when the women were defending themselves, there were significantly greater elevations in a range of measures of psychophysiological arousal, including heart rate, cardiac output, systolic blood pressure and forearm blood flow, in comparison to when defending a friend during anger provocation. The results indicated psychological and psychophysiological responses that were strongest in self-defence when challenged.

Investigation of the relationship between interpersonal conflict at work and psychological and psychophysiological responses has been conducted. Interpersonal conflict in its more extreme form was investigated using a simulation task. The heart rate of law enforcement officers was monitored in response to interpersonal conflict simulations using paintball-type simulation weapons (Siddle, 1995). Results indicated that heart rate increases to well over 200 beats per minute occurred in response to this type of interpersonal conflict, with some peaks of heart rate up to 300 beats per minute occurring during conflict situations.

The effects of exposure to less extreme forms of interpersonal conflict also have been considered. Wager, Fieldman and Hussey (2003) conducted a field study of female healthcare assistants examining their psychophysiological responses to interactions with two divergently perceived supervisors at the same workplace, on different days. Measuring blood pressure, these researchers

demonstrated that the behaviour of an unfavourably perceived supervisor is a potent workplace stressor that might have a clinically significant impact on supervisees' cardiovascular functioning.

The experiences of on-the-job interpersonal stress of traffic enforcement officers were examined (Brondolo, Karlin, Alexander, Bobrow, & Schwartz, 1999). Using ambulatory blood pressure monitoring technology, blood pressure and heart rate responses were measured when people were involved in real life interpersonal conflicts. When these workers interacted with the public, their blood pressure was higher than it was during any other type of communication, even when a motorist was not actually harassing them. It would appear that merely anticipating a potential conflict was associated with a lowering of mood and a rise in blood pressure. The workers' blood pressure remained high for a period of time after the interaction was over.

A range of factors have been demonstrated to influence the relationship between the interpersonal conflict and the stress response. Fontana and McLaughlin (1998) assessed the effects of coping processes and appraisal of daily stressors on stress reactivity. Participants performed a mental arithmetic task and an interpersonal conflict task during the pre- and postmenstrual phases of their menstrual cycles. Increased use of the emotion-focused coping strategies of tension reduction and positive reappraisal was associated with lower levels of baseline heart rate. In contrast, distancing, as a coping strategy, was associated with higher levels of systolic blood pressure reactivity during the conflict task. Perceiving daily stressors as more stressful was associated with higher baseline diastolic blood pressure levels.

The influence of coping strategies on the response to stressors has been reported elsewhere. For example, the coping strategies of men and women in response to unfair treatment and conflicts at work were considered (Theorell, Westerlund, Alfredsson, & Oxenstierna, 2005). The results indicated that the use of 'covert coping' by men in response to these types of stressors was associated with elevated cardiovascular risk and prospective long-term sick leave. For women, such coping strategies were related to current sick leave, but not to cardiovascular risk or long-term sick leave.

In summary, although the majority of investigations of the effects of work-related stressors have employed questionnaires to gain an understanding of the stress experience, there have been a number of studies that have focused on the psychophysiological aspects of the stress experience, often in combination with an examination of the psychological responses to these stressors.

It has been established that an examination of psychophysiological reactions is important in gaining reliable indications of the stress experience (Balick & Herd, 1987; Lester et al., 1994). There are clear indications that both organisational stressors, such as particular workplace conditions, as well as interpersonal stressors, such as conflict, can result in psychophysiological indications of stress. However, as yet, there has been no study that provides a direct comparison of the psychophysiological and psychological reactions to these two types of stressors where this comparison was the primary focus of the research.

4.3 Reactions at the time of the experience of the work stressor

It is evident that the majority of occupational stress research has examined the consequences of exposure to work-related stressors (e.g., Blythe, Baumann, & Giovanetti, 2001; Burke & Nelson, 1997; Hurrell et al., 1998; Maurier & Northcott, 2000; Roskies & Louis-Guerin, 1990; Rush, Schoel, & Barnard, 1995) and the factors that might impact on the relationship between exposure to a work stressor and the outcome for the individual (e.g., Armstrong-Strasen, 1997; Burke & Nelson, 1997; Havlovic et al., 1998; Noer, 1993).

In comparison, relatively few studies have considered the nature of the response to the work stressor at the time of experiencing the stressor. A review of the literature indicated that the majority of research in this area has been retrospective in nature and has utilised questionnaire methods to gain psychological information about a previously experienced stressful event for individuals who remain in the work place and who may not have been deemed as having clinically significant occupational stress. Therefore, it would be worthwhile to examine not only psychological but also psychophysiological responses to stressors at the time of the stressful event (recreated) with individuals who have been preselected on the basis of a psychological injury.

4.4 The current study

The current study aimed to examine the psychophysiological and psychological responses to either interpersonal or organisational stressors to determine whether the personal nature of interpersonal conflict translates to a more severe stress experience than organisational stressors

This study investigated the psychological and psychophysiological responses of individuals who were preselected on the basis of having a psychological injury as a result of exposure to certain work stressors. A guided imagery methodology was employed to learn more about how individuals react at the time of the stressful event. Personalised imagery scripts were created depicting various stages of the stressful event to which the individual was exposed.

Furthermore, it compared the experiences of people who developed their injury after exposure to interpersonal stressors with those who developed injury after exposure to organisational stressors. Given the personal nature of interpersonal conflict, it was predicted that those individuals exposed to interpersonal conflict would display a more negative and severe psychological and psychophysiological response that those exposed to organisational stressors. Some previous research tentatively supports this (Doby & Caplan, 1995). If it can be shown that the impact of occupational stress is more damaging conditional on the precipitating stressor, the management of the condition, which at present tends to be a standard intervention, could consider this difference in clinical intervention.

It was hypothesised that:

1) That both groups would demonstrate a greater psychophysiological response (as measured by Heart Rate) and psychological response (as measured by fear, anxiety and anger responses) when re-experiencing the stressful event compared with the non-stressful and neutral events.

2) That increases in psychophysiological arousal and psychological responses would begin after the scene stage, would increase during the incident stage, and then decrease at the consequence stage.
3) The interpersonal conflict group would demonstrate a more severe psychophysiological and psychological response, when re-experiencing the stressful conflict event, compared with those participants reliving an organisational stressful event.

4.5 Method

4.5.1 Participants

Participants (N=38) were pre-selected on the basis that they experience a work-related stress reaction. Groups were divided into an organisational stress group (n=12), and an interpersonal conflict group (n=26) based on the primary reason for their development of stress symptoms. Therefore, those individuals who had developed stress symptoms after exposure to an interpersonal conflict at work were referred to as the interpersonal conflict group, whereas those who developed work stress as a result of exposure to organisationally relevant stressors were categorised into the organisational group. Participants were recruited after advertisements were placed in local newspapers as well as at various locations around the University of Tasmania Hobart Campus. Participants were interviewed prior to recruitment in order to establish the presence of a psychological injury. This data was collected along with the data used in Study 1.

4.5.2 Materials

Visual Analogue Scales

Visual Analogue scales (VASs) (McCormack et al., 1988) were administered for each stage of each script to assess subjective responses to imagery on three bipolar dimensions with scores ranging from 0-100. Scales quantified the level of reaction on dimensions in not anxious/anxious, not angry/angry and afraid/unafraid. A higher the score reflected a more negative experience. Additionally, the subjective clarity of the participants' imagery (unclear/clear) and the accuracy of the personalised imagery script (not close/very close) were assessed using VASs, with higher scores reflecting a more positive evaluation. A copy of the VAS utilised in presented in Appendix E.

Imagery Scripts

Personalised scripts describing each participant's interpersonal or organisational stress experience, the neutral experience (such as making a cup of coffee at home) and the non-stressful work experience were constructed using information derived from an interview. The three scripts were organised into 4 stages, beginning with 'setting the scene' (the environment in which the behaviour occurred); 'approach' (the lead-up to the behaviour); 'incident' (the actual behaviour); and 'consequence' (what occurred moments after the behaviour had ceased).

4.5.3 Apparatus

Apparatus included a PC linked to a Powerlab data acquisition system using Chart 4.0. Measurements of electrocardiograph (ECG) were integrated to obtain a mean heart (HR). Electrodes were placed on the participants' midline with an earth reference on the mastoid process.

4.5.4 Procedure

In an initial session participants were asked to describe their stressful experience (either organisational or interpersonal), a non-stressful work experience and a neutral event not related to work and this was recorded on cassette tape. After this session, the imagery scripts were constructed with the information obtained at interview, only including elements described by participants.

During the subsequent session the following procedure was explained. Electrodes were attached to participants who were then seated and asked to close their eyes to begin. Each script was read to participants following a 60 second baseline. Each stage of each script lasted approximately 60 seconds with a brief pause between stages during which participants were able to open their eyes. During the imaging period, a second experimenter operated the computer recording psychophysiological measures. Script administration was presented in a counterbalanced order and VASs were completed at the end of each script presentation where participants were required to rate their psychological responses on scales of anger, fear and anxiety. Content of each stage was given

to participants to facilitate ratings. On completion of the collection of psychological and physiological response data, participants were fully debriefed.

4.5.5 Design

This study utilised a 2 x 3 x 4 mixed factorial design with repeated measures. Factor 1 (Group) was between groups with two levels (interpersonal conflict, organisational stress). Factor 2 (Script type) was within groups with three levels (stressful work event, non-stressful work event, neutral event). Factor 3 (Script stage) was within groups with four levels (scene, approach, incident, and consequence). Dependent variables were the subjective reactions on VAS dimensions and the physiological measures of heart rate.

4.5.6 Data Analysis

Repeated measured analyses of variance with Huynh-Feldt correction were performed for the visual analogue dimensions and the physiological responses. Post hoc analyses consisted of one way ANOVA's and Fisher PLSD on both psychological and physiological differences between scripts at each stage and between stages of each script.

4.5.7 Ethical Considerations

The re-experiencing of stressful events may be unpleasant for participants. For this reason, participants were offered debriefing at any stage and appropriate sources of counseling provided.

4.6 Results

4.6.1 Overview of the response to imagery

Repeated measures ANOVAs with the Huyhn-Feldt corrections being applied were performed on each of the psychophysiological measures and subjective measures for all three scripts. A significance criterion of 0.05 was adopted for all analyses. Although the number of ANOVAs was large, the ratio of participants to dependent variables prevented the use of the multivariate ANOVAs (Tabachnick & Fidell, 1996).

Means and standard deviations for each stage of each script for the two groups for the psychophysiological measure of heart rate are presented in Appendix H.

Subjective clarity of the participants' imagery and the accuracy of the personalised imagery script were assessed using VAS's, and the mean scores for the control VASs were within acceptable limits.

4.6.2 Psychophysiological response to imagery

There was no significant script by stage by group interaction for heart rate. There was a significant main effect for script, $F(2,72) = 14.56$, $MSE = 495.17$, $p < .0001$. This effect is shown in Table 8. Post hoc analyses demonstrated that the stressful script elicited a higher heart rate than did the non-stressful and neutral scripts (*Fisher LSD* = 1.3, $p < .05$).

Table 8. Means and standard deviations for stressful non-stressful and neutral scripts for measures of heart rate.

Script Type	Mean	Standard Deviation
Stressful	73.55	12.39
Non-Stressful	70.56	13.52
Neutral	69.30	11.25

4.6.3 Psychological responses to imagery

There were significant script by stage by group interactions for anger, $F(6,216) = 3.44$, $MSE = 464.09$, $p < .02$, and fear, $F(6,216) = 3.14$, $MSE = 401.58$, $p < .02$. These interactions are presented in Figure 1.

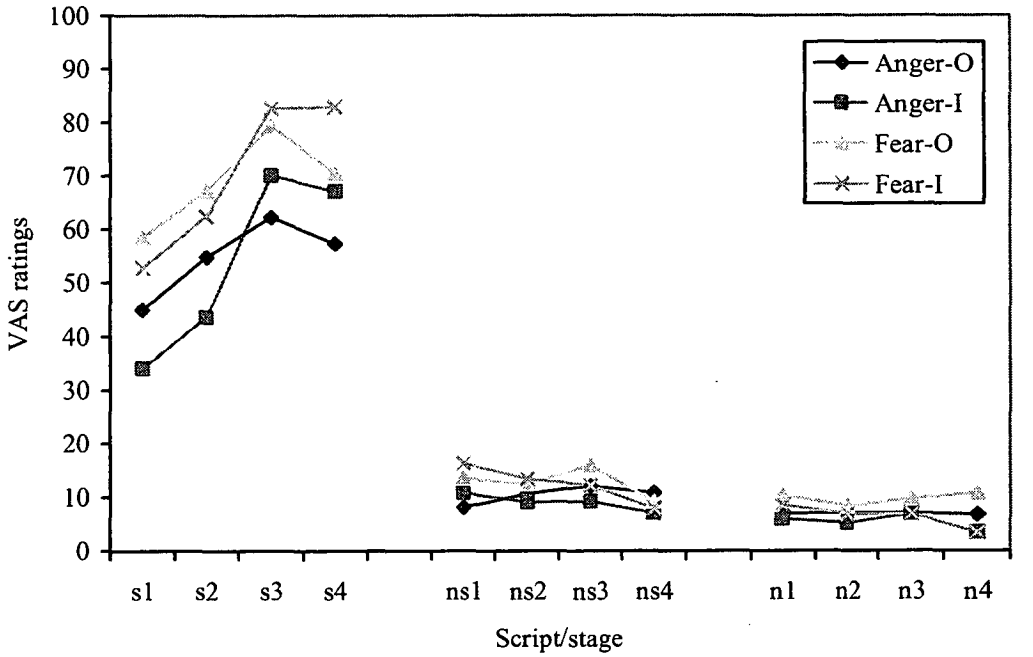

Figure 1. The mean VAS ratings for anger and fear for each stage of each script for the two groups.

Initially, group differences at each stage of each script for anger and fear were examined. No significant differences were noted. Consideration then was given to script differences at each stage for the two groups separately. These results are presented in Table 9. At each stage for each of the VAS and for both groups, the stressful script elicited higher ratings than both the non-stressful and neutral scripts.

Table 9. Post hoc statistics examining script differences at each stage for the two groups separately for anger and fear.

VAS	Group	Stage	F	MSE	p	Fisher	Differences
Anger	Org	1	16.3	5604.1	.0001	15.7	S>NS,N
		2	19.6	8517.9	.0001	17.6	S>NS,N
		3	22.2	11170.1	.0001	17.0	S>NS,N
		4	21.4	9471.2	.0001	17.8	S>NS,N
	Interpers	1	25.9	5885.8	.0001	8.4	S>NS,N
		2	29.1	11591.4	.0001	11.1	S>NS,N
		3	89.4	33432.0	.0001	10.8	S>NS,N
		4	84.1	33193.3	.0001	11.1	S>NS,N
Fear	Org	1	17.5	5708.6	.0001	15.3	S>NS,N
		2	25.5	10764.1	.0001	17.4	S>NS,N
		3	28.0	12950.1	.0001	18.2	S>NS,N
		4	14.2	6279.7	.0001	17.8	S>NS,N
	Interpers	1	33.3	8972.9	.0001	9.1	S>NS,N
		2	39.8	12093.0	.0001	9.7	S>NS,N
		3	68.4	22416.8	.0001	10.1	S>NS,N
		4	66.7	24410.2	.0001	10.7	S>NS,N

Next, examination was made of the across stage changes for each script for anger and fear for each of the groups separately. These post hoc results are presented in Table 10. The ratings of anger and fear at stages 1 and 2 of the stressful script were lower than the ratings at stages 3 and 4 for the Interpersonal group only. No other significant differences were noted.

Table 10. The post hoc statistics for the across stage changes for each script for anger and fear for the two groups.

VAS	Group	Script	F	MSE	p	Fisher	Differences
Anger	Org	S	1.4	631.8	ns		
		NS	0.7	32.1	ns		
		N	0.1	0.2	ns		
	Interpers	S	26.8	8116.2	.0001	9.6	1,2<3,4
		NS	1.3	59.7	ns		
		N	2.4	56.5	ns		
Fear	Org	S	2.8	1338.1	ns		
		NS	0.2	20.2	ns		
		N	1.7	105.6	ns		
	Interpers	S	9.8	2097.2	.0001	8.1	1,2<3,4
		NS	0.5	44.6	ns		
		N	3.1	72.0	ns		

There was a significant script by stage interaction for anxiety, $F(6,216) = 11.04$, $MSE = 1761.43$, $p < .0001$. This interaction is presented in Figure 2. The means and standard deviations for this interaction are presented in Appendix H.

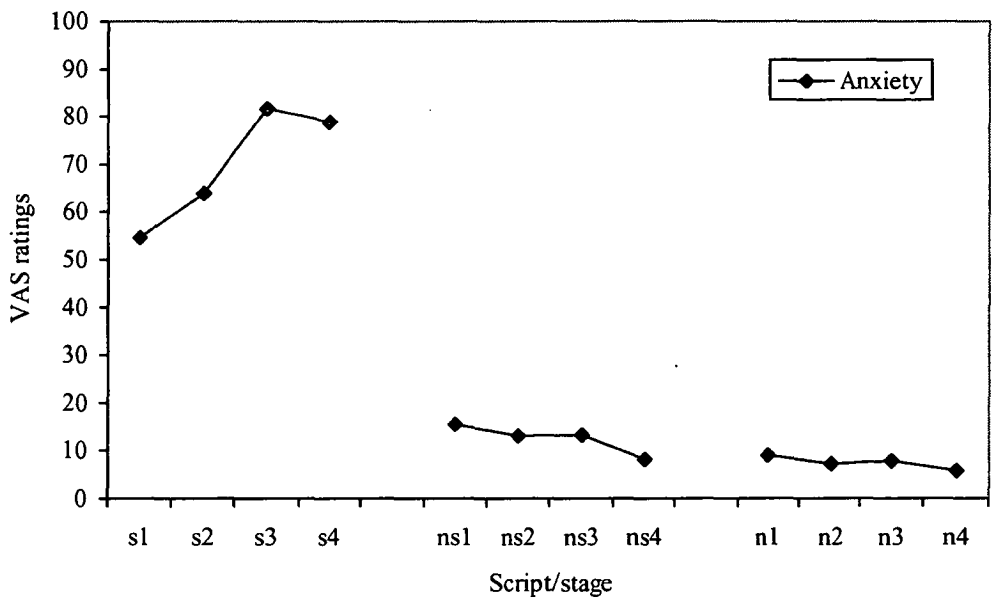

Figure 2. The mean ratings for anxiety for each stage of each script.

Between script differences at each stage were examined. The post hoc results are presented in Table 11. At each stage, the stressful script elicited stronger ratings of anxiety than did the non-stressful and neutral scripts.

Table 11. The post hoc statistics for between script differences at each stage for anxiety.

Stage	F	MSE	p	Fisher	Differences
1	57.0	23010.2	.0001	9.2	S>NS,N
2	98.2	36907.0	.0001	8.9	S>NS,N
3	263.2	64048.2	.0001	7.1	S>NS,N
4	163.4	65462.2	.0001	7.2	S>NS,N

Consideration then was given to across stage changes for each script for the anxiety ratings. These results are presented in Table 12. For the stressful script, the rating of anxiety at stage 1 was less then the ratings made at stages 2, 3 and 4. In addition, the ratings at stage 2 were lower than those made at stages 3 and 4. For the non-stressful script, the rating of anxiety at stage 4 was lower than at all other stages. There were no across stage changes in response to the neutral script.

Table12. The post hoc results examining across stage changes for each script for the VAS ratings of anger.

Script	F	MSE	p	Fisher	Differences
S	16.2	6175.7	.0001	8.9	1<2,3,4;2<3,4
NS	3.8	348.5	.0200	4.3	1,2,3>4
N	3.0	73.0	ns		

4.7 Discussion

The aim of the current study was to determine psychophysiological reactions at the time of facing stressors to establish whether the personal nature of interpersonal conflict translates to a more severe stress experience than exposure to organisational stressors. The results provide some evidence that this is the case.

There were no measured psychophysiological differences in the experience of interpersonal conflict compared with facing organisational stressors as measured by heart rate. There were elevations in heart rate when individuals were faced with either an interpersonal stressor or an organisational stressor. This finding indicates that indeed, exposure to stressful events at work elicit a stress related psychophysiological response and supports the use of this methodology in this regard. Literature examining the psychophysiological reactions to stressful situations in the workplace suggests the presence of a

relationship between psychophysiological arousal and stressful events (e.g., Brondolo et al., 1999; Evans & Carrere, 1991; Lim et al., 1987; Lusk et al., 2002; Matthews et al., 1987; Schulz et al., 1998; Tattersall & Hockey, 1995). Further evidence for this was provided. Regardless of whether individuals were exposed to interpersonal or organisational stressors there were increases in heart rate when imaging the stressful work events, consistent with previous research using different methodologies (e.g., Ritvanen, Louhevaara, Helin, Väisänen, & Hänninen, 2006; Vrijkotte, Van Doornen & De Geus, 1999). Heart rate variability has been demonstrated to have both short-term and long-term effects on an individual's health. For example, Smith and Ruiz (2002) found that interpersonal conflict and job stress are linked with increased risk of coronary heart disease. Indeed, work stress has repeatedly been associated with an increased risk for cardiovascular disease, which has been explained as a result of exaggerated cardiovascular reactivity to work stressors. The current study provides further evidence for this risk. The study did not provide evidence to suggest increased psychophysiological activity when facing interpersonal conflicts at work compared with organisational stressors.

Aside from confirmation of the psychophysiological reactions when faced with stressors, as hypothesised, it was also evident that negative psychological reactions begin to occur at the time that individuals are faced with stressors. Certainly, the significant differences in relation to responses to the stressful script compared with the non stressful and neutral scripts indicated that the methodology used was effective in assessing the differential reactions to stressful and non stressful events. Regardless of the type of stressor with which the individual is faced, it was evident that they experienced higher levels of anxiety

when exposed to workplace stressors. This is consistent with previous research in the area and theories of stress (e.g., Abramis, 1994; Bjoerkqvist, Oesterman, & Hjelt-Baeck, 1994; Price & Hooijberg, 1992). It was evident that when faced with either interpersonal or organisational types of stressors, there is a steady build up of anxiety moments before the event and during the event.

In relation to psychological feelings of anger and fear, there were some differences between groups who were confronted with interpersonal stressors and those who faced organisational stressors. As was the case for feelings of anxiety, all individuals responded with heightened feelings of anger and fear when faced with stressful situations at work compared with non-stressful situations, consistent with previous research (e.g., Haines, Williams, & Carson, 2002).

However, it was evident that the experience of interpersonal conflict was different from the experience of organisational stressors in terms of negative emotions of fear and anger. Although all individuals responded with heightened feelings of anger and fear when faced with stressful situations at work, compared with non-stressful situations, consistent with previous research (e.g., Haines et al., 2002), exposure to interpersonal stressors appeared to differ at the exact moment that the stressful event was taking place and in it's aftermath. During this time the experience of interpersonal conflict brought about a surge in feelings of anger and fear as demonstrated by across stage post hoc analyses. These across stage differences were not demonstrated for the organisational group. This is supported by previous studies (e.g., Bongard & al'Absi, 2005; Hahn, 2000).

Additionally, there appeared to be no significant reduction of negative psychological reactions to interpersonal conflict, which was not the case when facing organisational stress, consistent with a study by Doby and Caplan (1995). It has been found that work stress has negative effects on family and home life (Muchinsky, 1997). Work stress has also been shown to negatively impact on marital cohesion (Robinson, Flowers & Carroll, 2001). Indeed, it appears that in the case of organisational stressors, there is a relatively immediate reduction in stress after exposure, which was not demonstrated with individuals who faced workplace conflict. It appears that there are more long-term negative consequences when interpersonal conflict takes place. The lack of immediate resolution of the response may leave people vulnerable to these longer-term consequences.

Fear has been found to occur in response to particular work-related stressors such as fire fighters engaging in rescue work (Fullerton, McCarroll, Ursano, & Wright, 1992). However, the literature demonstrates that there is little evidence to indicate fear is experienced in response to more common workplace stressors. Yet, the current study provided evidence to suggest that there was a heightened fear response for individuals precisely when they were engaging in the interpersonal conflict interaction. It would be reasonable to suggest that feelings of fear would typically occur when an individual is confronted with any type of conflict situation. Feelings of fear during interpersonal conflict at work may be associated with a threat of conflict escalation in the workplace and the possibility of physical harm. This apparent perception of threat appears to be an additional negative consequence associated with interpersonal stressors at work that is not evident when individuals are exposed to organisational stressors.

The current study provided evidence to suggest that the experience of stress when exposed to interpersonal stressors differs in comparison to the experience of exposure to organisational stressors. By comparing both psychological and psychophysiological reactions at the time of exposure to stressors it was determined that exposure to workplace stressors results in increases in heart rate regardless of the nature of the stressor involved. It appears as though psychological reactions to stressors involve feelings of anxiety, fear and anger, consistent with previous research in the area. However, the results of the current study also indicated that when confronted with interpersonal conflict, feelings of anger and fear were more pronounced and there was no significant reduction of negative feelings after exposure to the stressors, which occurred when facing organisational stressors. The study provides evidence to suggest that interpersonal conflict at work may represent a more severe and long lasting experience compared with facing organisational stressors.

CHAPTER 5

STUDY THREE: WORKERS' COMPENSATION FOR PSYCHOLOGICAL INJURY: ORGANISATIONAL AND INTERPERSONAL STRESSORS

5.1 Introduction

It has been established unequivocally that exposure to both organisational and interpersonal stressors in the workplace is associated with the development of occupational stress symptoms. It has also been suggested that the incidence of occupational stress is considered to be a significant and escalating problem (Toohey, 1995) and, therefore, it is not surprising to note that there has been a consistent increase in the percentage of workers' compensation claims for work-related psychological injury (Pearson et al., 1999).

Workers compensation is "an insurance system, that provides workers with income support and coverage for medical expenses resulting from a work-related injury" (World Health Organisation [WHO], 2000). The basic underlying principles of the workers' compensation system are that it is a no-fault system that does not require proof of employer negligence, there are specified entitlements for medical and lost income that provide recompense for injuries arising from the normal course of work duties, there is mandatory worker's compensation insurance for all employers, and there is the right of appeal for employees and employers regarding compensation decisions (Bohle & Quinlan, 2000).

In relation to workplace stress, workers' compensation legislation requires that employees demonstrate that they have developed a clinical condition as a result of exposure to work stressors (Eisner, 1984) and employment must be the most substantial contributor to the condition (Lasky, 1991). This clinical condition is also known as a psychological injury. An individual's vulnerability

to psychological injury, or the fact that such an injury has arisen from reasonable management action, in almost all cases, is not sufficient to avoid liability (Australian Public Service Commission: http://www.apsc.gov.au/ses/news4.htm). However, the employment conditions producing the mental disorder must be objective and must be conditions other than those generally inherent in every working situation, corrective or job performance actions by the employer, or cessation of employment (http://www.cbs.state.or.us/wcb/2004/review/may).

The rising costs associated with workers' compensation claims for psychological injury appear to be a concern around the world with similar trends in Australia (Purse, 2000; Swedlow, Johnson, Smithline, & Milstein, 1992) in both the private and public sector (Toohey, 1995). Claims for psychological injuries are emerging as a major concern, despite being relatively small in number. The direct costs of psychological injury claims are the highest of any claim type as they usually involve extended periods of time off work, and higher medical and other claim payments (Australian Public Service Commission: /www.apsc.gov.au/ses/news4.htm). High costs are also associated with factors such as delay of lodgement, acceptance of the claim and the severity of the condition (Kenny, 1996). There are also indirect costs to be considered, such as those associated with absenteeism, labour turnover, workplace conflict, lost productivity and the effect on team performance (Australian Public Service Commission: http://www.apsc.gov.au/ses/news4.htm).

Three types of psychological injuries have been identified. Physical-mental psychological injury involves the development of negative psychological consequences after the experience of a physical injury. Mental-physical refers to

those cases where the development of stress symptoms comes before physical symptoms or injury. Mental-mental cases are those that involve the development of psychological symptoms following exposure to stressful conditions at work (Earnshaw & Cooper, 1991). The onset of symptoms following exposure to a known psychologically traumatic event at work can be acute (Guyton, 1981). In other instances, symptoms can arise after continued exposure to lower grade work stressors (Cooper & Payne, 1988).

It has been proposed that workers' compensation claims that have been lodged as a result of physical-mental and mental-physical psychological injuries are less contentious than mental-mental injury claims (Adler & Schochet, 1999; Lippel, 1999). This is because physical-mental and mental-physical psychological injuries are associated with some form of physical disablement that provides the opportunity for objective measurement of the impact of exposure to stressors. However, the validity of mental-mental claims cannot be objectively assessed in the same way (Adler & Schochet, 1999; Lippel, 1999). With purely psychological cases, courts must find a way of determining whether these non-visible internal events have the required work connection to justify compensation (Adler & Atlas, 2004). The Canadian Compensation Board concluded that mental-mental injuries are the most problematic of claims because both the precipitating cause of the injury are not as visible as injuries of a physical nature (http://www.awcbc.org/english/).

There is evidence to suggest that the compensation process itself can have negative effects on the claimant and their potential for recovery (Greenough & Fraser, 1989), increase disability (Guest & Drummond, 1992; Leavitt, 1992) and

decrease the potential for return to work (Armstrong & Lyth 1999). A study by the Australian Council of Trade Unions demonstrated that whereas over one in four workers in Australia, took leave from work because of stress, only four per cent sought workers' compensation. Deterrents named by participants were a fear of retribution, difficulty gaining acceptance from employers and medical practitioners that stress at work is a legitimate explanation for illness, and the associated stigma of acquiring a mental health condition (Australian Council of Trade Unions [ACTU], 1998). Research has shown that aspects of the compensation process, such as relations between employees, inconsistency between medical opinions and financial disincentives, lengthy and complex paperwork, poor communication (Pergola, Salazar, Graham, & Brines, 1999), delays in the provision of medical interventions (McIntosh, Frank, Hogg-Johnson, Bombardier, & Hall, 2000) and complicated legislative restrictions (U'Ren & U'Ren, 1999) can impede recovery. Furthermore, the generally negative attitudes of employers towards the injured worker have been found to negatively impact upon recovery rates (Robinson et al., 1997).

Compensation neurosis has been defined as "a combination of emotional and physical symptoms that develop after a compensable or litigious injury, characterised by reports of continued disability beyond the expected period of recovery, and disparity between reports of pain and physical injury (School of Occupational Therapy Curtin University, 2001, p.29). Although not listed in the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2000), symptoms can include sleep disturbance, headaches, sensory loss (Judd & Burrows, 1986) or continued depression and anxiety symptoms (Guest & Drummond, 1992). Interestingly, research into malingering or the

falsifying of symptoms for personal or financial gain suggests that only a small percentage of all injured workers are believed to falsify symptoms (Robinson et al., 1997).

A review of the literature indicated that there have been a few studies that have attempted to determine the link between specific types of stressors and the likelihood of lodging a workers' compensation claim and the experience of the compensation process. Dollard and colleagues (1999) investigated the prediction and management of stress-related compensation claims in relation to chronic versus specific stressors. They found the presence of a clear relationship between type of stress precipitant and length of stress-related leave, suggesting that the organisational response to specific stressful incidents was much more effective than its response to chronic work stressors. In relation to specific organisational stressors, Horwitz (2003) found that the level of job demands was a predictor of stress claims. There is some literature that deals with the compensation of psychological injuries that have developed as a result of particular interpersonal interactions at work. Jobb (2005) suggested that behaviour once largely ignored or, alternatively, dealt with through a grievance, such as workplace confrontations, are now the bases of stress and trauma compensation claims. Some empirical support for the link between interpersonal stressors and lodgement of compensation claims has been found. For example, violence at work has been identified as a problem that can lead to the lodging of workers' compensation claims (Boyd, 1995).

There has also been some investigation into the association between personality characteristics and workers' compensation claims. For example,

Stolworthy (1996) compared a group of workers' compensation claimants on hardiness and Type A behaviours. They found that workers' compensation claimants tended to report lower amounts of hardiness and a higher level of Type A behaviours. Some sex differences have also been found. For example, Lippel (1999) found that access to compensation for psychological disability related to stress is more difficult for women than for men, although it is difficult for both men and women to make their case. In addition, it was found that personal problems, previous psychiatric history, legal representation, employer opposition, or nature of stressful situations giving rise to the claim did not explain differences in outcome.

In summary, there is evidence to suggest that with the increase in psychological injuries at work, there has also been a surge in workers' compensation claims for the development of occupational stress. A number of components of the workers compensation process have been found to be detrimental to the employee's health. So far, there has been no comparison of the experience of the workers' compensation process for individuals who lodge a claim for psychological injury after either interpersonal conflict or organisational stressors. There is some evidence that suggests that the absence of objective means of assessing the validity of a claim may be problematic in proving an injury (Adler & Schochet, 1999; Lippel, 1999). On the basis of this assertion, it may be harder to make the case for a claim based on interpersonal conflict compared with organisational stressors as organisational factors such as restructuring, increased workload or dangerous conditions are more identifiable and less subjective than an interpersonal conflict between colleagues.

5.2 The Current Study

The aim of this study was to compare the experience of engaging in the workers' compensation system and to evaluate return to work outcomes of individuals who lodged a claim based on psychological injury following exposure to either organisational stressors or interpersonal conflict at work. Based on the premise that litigation and disputation may delay recovery and hinder outcomes (Armstrong & Lyth 1999; Greenough & Fraser, 1989) and that the absence of an objective means of assessing the validity of a claim may be problematic in proving an injury (Adler & Schochet, 1999; Lippel, 1999), this study aimed to determine whether claimants who have experienced conflict have more difficulty within the workers' compensation system and poorer return to work outcomes compared with those who face organisational stressors. Demographic variables and psychological functioning was also examined.

It was hypothesized that those individuals who had lodged a claim after the development of a psychological injury due to interpersonal conflict would report the following when compared with individuals who faced organisational stressors.

1) A more severe negative psychological response (as indicated by degree of specific symptoms and level of impairment);
2) A greater use of professional and medical services to assist in the management of these symptoms;
3) A greater level of disputation within the workers' compensation process;
4) Attending a greater number of psychiatric reviews;
5) A greater level of impairment in functioning outside of work;
6) A greater use of sick leave to manage occupational stress symptoms;
7) A less successful return to work.

5.3 Method

5.3.1 Data source

The Tasmanian Public Sector is self-insured for workers' compensation. Information was obtained from the files held by the Workers' Compensation Fund Manager for the Tasmanian Public Sector. Cases were extracted relating to psychological injury over a four-year period. A list of appropriate files was supplied by the Fund Manager. From this group, all claims for psychological injury specifically relating to interpersonal conflict (n=256) and organisational stressors (n=383) were included in the current study (N=639).

5.3.2 Data obtained

A range of information was obtained from the workers' compensation files including demographic information (sex, age), duration of claim and status of the claim, nature of onset of the stress response (acute, chronic), psychological symptoms, psychiatric diagnoses, duration of hospitalisation, number of reviews for the insurer, number of treatment consultations (e.g., general practitioner, psychiatrist, psychologist, other therapist), medication, number of client contacts with rehabilitation provider, number of other therapeutic services (e.g., dental for bruxism), factors beyond the workplace impacting on functioning, work attendance (e.g., use of sick leave), nature and pattern of return to work programme, factors relating to the workers' compensation process (e.g., disputation process, time without benefits, common law claims), and work-related outcomes. The record form used to obtain this information is presented in Appendix G.

From the information obtained from the files including psychiatric reports and reports from general practitioners, a determination was made of the level of impairment along with a global assessment of functioning according to the DSM-IV (APA, 2000). Level of impairment was determined using a scheme developed by the Australian Commonwealth Statutory Authority, Comcare, that administers the Commonwealth's Workers' Compensation Scheme (http://www.comcare.gov.au).

5.3.3 Procedure

Two registered psychologists accessed the workers' compensation claim files and extracted the relevant information. This data was obtained as part of a larger study examining the experience of psychological injury in Tasmanian public sector employees.

5.4 Results

5.4.1 Demographic and work stressor information

There was a sex difference between the groups, $\chi^2(1, N = 639) = 3.4$, $p < .05$, with 52% of the organisational group and 59.4% of the interpersonal group being female. More of the interpersonal conflict group than expected were female and more of the organisational group were male.

When consideration was given to the nature of the onset on the work stressor, there was a significant difference between groups, $\chi^2(1, N = 622) = 8.99$, $p < .003$. More of the interpersonal group (78.9%) than the organisational group (67.9%) reported an insidious onset of the stressor.

There was no group difference in whether or not a previous workers' compensation claim had been lodged, $\chi^2(1, N = 606) = 0.80$, $p > .05$, with 28.0% the organisational group and 31.3% of the interpersonal group having previously lodged such a claim.

5.4.2 Effect on functioning

Consideration was given to the influence of the experience of the work stressor on level of impairment and general functioning. Table 13 presents the mean ratings and standard deviations for level of impairment and global functioning for the two groups. There were no significant differences between groups on level of impairment, $t(613) = 1.30$, $p > .05$, or global functioning, $t(613) = 1.2$, $p > .05$. The mean ratings indicated a low level of need for supervision and some direction in activities of daily living, along with mild symptoms and difficulty with functioning.

Table 13. The mean scores and standard deviations for the two groups for level of impairment and global functioning.

Scale	Organisational		Interpersonal	
	M	SD	M	SD
Level of impairment	16.6	6.4	15.9	6.2
Global functioning	65.1	13.4	66.4	13.0

5.4.3 Symptom type

Examination was made of the presence or absence of specific symptom types. Table 14 presents the percentage of each group who experienced each symptom type. Group differences were noted for the presence of depressive symptoms, $\chi^2(1, N = 629) = 4.40$, $p < .04$, somatic symptoms, $\chi^2(1, N = 627) = 27.90$, $p < .0001$, and cognitive symptoms, $\chi^2(1, N = 629) = 4.00$, $p < .05$. In each case, the interpersonal group was more likely to report these types of symptoms

than the organisational group. There were no group differences for anxiety symptoms, $\chi^2(1, N = 27) = 0.80, p > .05$, or for symptoms in the miscellaneous category, $\chi^2(1, N = 629) = 2.00, p > .05$.

Table 14. The percentage of the two groups experiencing each of the symptom types.

Symptom type	Organisational	Interpersonal
Anxiety	77.4	74.2
Depressive	49.3	57.8
Somatic	41.7	63.1
Cognitive	35.1	43.0
Miscellaneous	46.6	52.3

5.4.4 Psychiatric diagnoses

Record was made of the psychiatric diagnoses made for the members of each group. Table 15 presents the percentages of each group having been diagnosed with a condition from each of the psychiatric diagnostic categories. There was a group difference for the diagnosis of adjustment disorders, $\chi^2(1, N = 638) = 15.60. p < .0001$, and the other diagnosis category, $\chi^2(1, N = 635) = 8.70, p < .004$. In both these case, the interpersonal group was more likely than the organisation group to have received these diagnoses. There were no group differences for diagnoses of anxiety disorders, $\chi^2(1, N = 638) = 1.30, p > .05$, mood disorders, $\chi^2(1, N = 637) = 0.10, p > .05$, or personality disorder, $\chi^2(1, N = 636) = 0.90, p > .05$.

Table 15. The percentage of the two groups receiving diagnoses in each of the psychiatric diagnostic categories.

Diagnostic category	Organisational	Interpersonal
Anxiety disorders	23.3	19.5
Mood disorders	15.7	14.8
Adjustment disorders	17.8	31.2
Personality disorders	0.3	0.8
Other disorders	1.6	5.9

5.4.5 Treatment and intervention

Consideration was given to the way in which the psychological injuries were treated or managed. Table 16 presents the mean number of consultations and standard deviations with each treating professional. There were no group differences for the number of consultations with a general practitioner, $t(637) = 0.40$, $p > .05$, psychiatrist, $t(635) = 0.20$, $p > .05$, psychologist, $t(635) = 1.20$, $p > .05$, or other treating professional, $t(635) = 0.60$, $p > .05$.

Table 16. The mean number of consultations and standard deviations with each treating professional for the two groups.

Treating professional	Organisational		Interpersonal	
	M	SD	M	SD
General practitioner	5.8	9.7	6.1	11.8
Psychiatrist	4.5	11.4	4.3	12.8
Psychologist	3.6	10.7	2.7	7.7
Other professional	0.1	1.0	0.0	0.3

Examination was made of the proportion of each group who had been prescribed each medication type. Table 17 presents the percentage of each group who had been prescribed each type of medication. There were no group differences with regard to the prescription of anti-anxiety agents, $\chi^2(1, N= 636) = 0.40$, $p > .05$, anti-depressant medication, $\chi^2(1, N = 637) = 2.00$, $p > .05$, or other types of medication, $\chi^2(1, N = 635) = 0.34$, $p > .05$.

Table 17. The percentage of each group having been prescribed each type of medication.

Medication type	Organisational	Interpersonal
Anti-anxiety agent	16.5	18.4
Anti-depressant	22.3	17.6
Other medication	7.1	5.9

Table 18 presents the mean number of days of hospitalisation, the mean number of other therapeutic services and the mean number of client contacts with rehabilitation consultants along with standard deviations. There was no significant group difference for the number of days of hospitalisation, $t(df = 634) = 0.7$, $p > .05$. The interpersonal conflict group did not have significantly more days in hospital compared with the organisational group. There were no significant differences between the interpersonal group and the organisational group for the number of other therapies, $t(df=633) = 0.9$, $p > .05$. Finally, there were no group differences in the number of client contact with rehabilitation consultants, $t(df=634) = 1.3$, $p > .05$.

Table 18.Mean number of days of hospitalisation, other therapeutic services and number of client contacts with rehabilitation consultants.

Service	Organisational		Interpersonal	
	M	SD	M	SD
Hospitalisation	0.5	4.2	0.8	7.6
Other therapeutic service	0.3	0.7	0.3	1.0
Rehabilitation consults	5.3	14.2	7.4	24.5

5.4.6 Functioning outside of work

Examination was made of individual's functioning outside of work. Table 19 presents the percentage of each group who experienced a major stressful life event outside of work, who had problems with functioning outside of work, and who had psychiatric problems not associated with work prior to the onset of the work stressor. No significant differences were found between the groups for major stressful life event outside of work, $\chi^2(1, N = 634) = 1.5, p > .05$, or functioning outside work, $\chi^2(1, N = 636) = 2.0, p > .05$.

A significant difference was found between the interpersonal and organisational groups, with regard to pre-existing psychiatric problems. The interpersonal conflict group had a higher rate of premorbid psychiatric problems than did the organisational group, $\chi^2(1, N = 636) = 8.4, p < .05$.

Table 19. The Percentage of each group endorsing the variables associated with functioning outside work.

Functioning	Organisational	Interpersonal
Major Stressful Life event	19.8	23.9
Problems functioning outside of work	6.6	3.9
Psychiatric problems	38.4	50.0

5.4.7 Behaviour leading up to workers' compensation claim

Examination was made of individual's behaviour leading up to the compensation claim. Table 20 presents the percentages of each group who used sick leave or annual/recreation leave to cope with work stress in the time leading up to the workers' compensation claim and the percentages of each group who sought help from medical services in the lead up to the lodging of the workers' compensation claim. There were no significant group differences for sick leave taken, $\chi^2(1, N = 637) = 0.3, p > .05$. There was a trend for the interpersonal group to use more recreation leave in the time leading up to the workers' compensation claim, $\chi^2(1, N = 637) = 3.8, p = .0506$. There was one group difference in the pattern of behaviour leading up to the claim. The interpersonal conflict group sought more help from medical services than did the organisational group, $\chi^2(1, N = 636) = 5.0, p < .05$.

Table 20. The percentages of each group who used sick leave or annual/ recreation leave and who sought help from medical services.

Assistance Sought	Organisational	Interpersonal
Sick Leave	16.5	14.8
Annual/Rec Leave	4.5	8.2
Medical Services	5.8	10.6

5.4.8 Workers' compensation process

Examination was made of the workers' compensation process. Table 21 presents the percentage of each group experiencing each of the workers' compensation events. There was a group difference with regard to whether the workers' compensation claim was formally disputed by the employer, $\chi^2(1, N = 636) = 20.7, p < .0001$. Significantly more of the claims than expected made by the interpersonal conflict group were disputed whereas fewer of the claims then expected made by the organisational group were disputed.

There were no significant group differences with regard to whether the claim was disputed in the initial stages, $\chi^2(1, N = 623) = 1.4, p > .05$, or whether or not the dispute of the claim was prolonged, $\chi^2(1, N = 626) = 2.9, p > .05$.

There was a significant group difference with regard to whether or not there was a period of time when benefits (salary) were not paid, $\chi^2(1, N = 634) = 6.6, p < .05$. The interpersonal conflict group was more likely to have experienced a period of time when no benefits were paid compared with the organisational group.

There was no difference between groups with regard to the percentage who lodged a common law claim as a result of the experience of their work stressor, $\chi^2(1, N = 633) = 1.5, p > .05$.

Table 21. The percentage of each group experiencing each of the workers' compensation events.

Event	Organisational	Interpersonal
Formal disputation	53.8	71.8
Initial disputation	12.2	12.6
Prolonged disputation	2.6	5.3
Benefits	13.2	20.9
Common law claim	3.2	5.1

Examination was made of the percentage of each group experiencing each of the workers' compensation events. Table 22 presents the percentage of each group experiencing each of the workers' compensation events. There was a significant difference between groups in the number of psychiatric reviews for the insurer that had to be undertaken, $t(\text{df}=634) = 4.3$, $p < .0001$. The interpersonal conflict group had to undertake significantly more reviews than the organisational group. There was no significant group difference for the time away from work measured in days, $t(\text{df}=568) = 0.3, p > .05$.

Table 22. Means group differences for psychiatric reviews.

Event	Organisational		Interpersonal	
	M	SD	M	SD
Psychiatric reviews	0.6	0.8	0.8	0.8
Time away from work	49.1	76.5	47.3	76.2

5.4.9 Return to work

Examination was made of return to work outcomes. Table 23 presents the percentage of each group who had not attempted to return to work, attempted a graded return, or attempted a return to work on a full-time basis. There were no differences between group statistics. There were no differences between groups in the number of return to work attempts that had been made t(df=612) = 1.9, p >.05 (Organisational group M = 0.7, SD = 0.7; Interpersonal group M = 0.6, SD = 0.7).

Table 23. The percentage of each group who had not attempted to return to work, attempted a graded return, or attempted a return to work on a full-time basis

Return to work attempts	Organisational	Interpersonal
No attempts	19.7	23.5
Attempt at graded return	30.4	22.4
Attempt at full time return	25.7	18.7

Examination was made of whether return to work assistance was required. Table 24 presents the percentage of each group who required certain return-to-work assistance. There was a group difference in the percentages of each group who required restricted duties at work or alternative duties at work $\chi^2(1, N = 618) = 4.9, p < .05$. The organisational stress group were placed on restrictions upon a return to work in significantly more cases that the interpersonal group. There were no group differences with regard to alternative duties, $\chi^2(1, N = 620) = 0.1, p > .05$, or the need for retraining, $\chi^2(1, N = 617) = 7.8, p > .05$.

Table 24. The percentage of each group who required certain return-to-work assistance.

Functioning	Organisational	Interpersonal
Restriction of duties	30.4	22.4
Alternative duties	18.1	19.2
Retraining	6.0	6.0

Whether return to work was to the same position or a different position and whether it was full time or on a part-time basis was considered. Table 25 presents the percentages of each group returning to same or different positions on a full- or part-time basis. There were no group differences in the individuals who returned to the same position on a full-time basis, $\chi^2(1, N = 6.32) = 0.6, p > .05$, a different position on a full-time basis, $\chi^2(1, N = 626) = 0.1, p > .05$, the same position on a part-time basis, $\chi^2(1, N = 628) = 7.4, p > .05$, or a different position

on a part-time basis, $\chi^2(1, N = 626) = 0.1, p > .05$. Finally, there were no group differences for individuals who did not return to work $\chi^2(1, N = 627) = 0.5, p > .05$, or cases that remained unresolved $\chi^2(1, N = 625) = 1.3, p > .05$.

Table 25. The percentages of each group returning to same or different positions on a full- or part-time basis

Return to Work Basis	Organisational	Interpersonal
Part-time/Same position	0.8	0.8
Fulltime/Diff position	11.3	12.2
Full time/same position	57.6	54.5
Part-time/Diff Position	1.1	0.8
No return to work	10.4	8.7
Unresolved	19.7	23.5

5.5 Discussion

The aim of this study was to compare the experience of engaging in the compensation system and evaluating return to work outcomes of individuals who lodged a claim based on psychological injury following exposure to either organisational stressors, or interpersonal conflict at work. Demographic variables and psychological functioning was also examined.

Firstly, it was found that there were more males lodged a claim in relation to an organisational stress and more females who lodged a claim for interpersonal stress. There is inconsistent research regarding interpersonal

conflict at work and sex. For example, some studies indicate that interpersonal conflict is more stressful for women than for men (e.g., Hutri & Lindeman, 2002) and that it predicts actual work disability only for women (Appelberg et al., 1996). A more severe impact on women would suggest that they would be more likely to lodge a claim based on interpersonal conflict at work than would men. In fact, it has been shown that, in general, interpersonal conflict is more often reported by women than men for individuals taking compensated leave after the development of a psychological injury at work (Haines et al., 2002). A study by Weitzman (2001) found that young women lacked abilities for handling conflicts at work. Berryman-Fink and Brunner (1987) found that both male and female subordinates were more likely to pursue their interests in a conflict with a female supervisor and were less likely to use confrontation with a male supervisor. Furthermore, Duane (1989) found that female supervisors were less likely to avoid conflict situations and tended to be more competitive whereas male supervisors were more likely to accommodate subordinate's requests than female supervisors. In this way, it may be males are less likely to become engaged in conflict that results in the development of psychological injury and the subsequent lodging of a workers' compensation claim.

It was also evident that when faced with interpersonal conflict there was an insidious onset of the stressor with a build up over time compared with experiencing organisational stressors, which was more acute. However, the majority of organisational stressor also involved an insidious onset. This suggests that lodging a workers' compensation claim for interpersonal conflict in the work place is not a consequence of one single stressful interaction. Instead, the onset of symptoms arose from a cumulative effect of exposure to interpersonal

conflicts. Previous research which has examined the onset of stressors and the workers' compensation process has suggested that it is more straightforward to lodge a workers' compensation claim when there is an identified and recognisable stressor (e.g., Dollard et al., 1999; Haines et al., 2002). If this were the case, this would then pose particular difficulties for claimants lodging a claim for psychological injury that developed after multiple exposures to interpersonal conflict at work.

With regard to specific psychological symptoms, as hypothesized, there was strong evidence that individuals who experienced interpersonal conflict at work reported the presence of depressive symptoms, somatic symptoms, and cognitive symptoms (e.g. concentration difficulties) more so than those individuals facing organisational stressors. However, this did not translate into poorer functioning or greater impairment.

This result indicates greater or more adverse symptomatology, consistent with other research in the area. For example, Romanov and colleagues (1996) found that recent interpersonal conflict at work is connected with an increased risk of psychiatric morbidity. Similarly, Frone (2000) showed that interpersonal conflict with co-workers leads to feelings of depression and somatic symptoms.

There was evidence to suggest that interpersonal conflict yielded higher reports of depressive symptoms, with slightly less than half of the organisational group reporting symptoms of depression. Previous research in the area has indicated a link between organisational stressors and depression (e.g., Heinisch & Jex 1997). Nevertheless, it appears that interpersonal conflict evokes more

severe psychological symptomatology and this may be due to the personal nature of interpersonal conflict situations.

Although this was the case, it was apparent that there was no greater level of impairment or poorer functioning for either of the groups. This may be because, in general, depressive, cognitive and somatic symptomatology would be regarded as less severe than more serious mental illness and therefore the level of impairment associated with these symptoms would fall into the mild to moderate range.

There was strong evidence to suggest that individuals who experienced interpersonal conflict were more likely to have been given a diagnosis of adjustment disorders and disorders in the 'other' category than individuals who had been exposed to organisational stressors. The relatively greater frequency of depressive symptoms in the conflict group may represent depressive symptoms that can be associated with adjustment difficulties that develop as a function of being exposed to situational conflicts (e.g. Lavoie et al., 2001). Therefore, an adjustment disorder diagnosis would accurately be made to account for the mood symptoms being reported by the conflict group.

There were no differences for diagnoses of mood disorders or personality disorder between individuals facing the two different types of stressors. There is literature that suggests that individuals with particular personality disorders are prone to become involved in interpersonal conflicts. However, the findings from the current study suggest that the workplace conflict was not found to be associated with the presence of personality disorders and personality disorders occurred at a low rate and there was no difference between the groups in the

number of individuals with personality disorder. It would be easy to explain interpersonal conflict in the workplace as a stressor that occurred when those involved were people who are generally prone to difficulties with interpersonal functioning. However, this somewhat simplistic explanation clearly does not account for the significant effect of interpersonal conflict in the workplace.

There were also no differences in the number of consultations with a general practitioner, psychiatrist, psychologist, or other treating professional, prescription of anti-anxiety agents, anti-depressant medication, or other types of medication. Similarly, there was no difference for the number of days of hospitalisation, use of other therapies or client contact with rehabilitation consultants. So, regardless of the differences in reports of psychotic symptomatology, because the number of people experiencing psychosis was so small, it appears that the interpersonal conflict group did not receive more pharmacological treatment nor did they seek more professional treatment than would be expected in order to address presenting symptomatology. As stated, it appears that the severity of most of the symptoms reported fall in the mild to moderate range and, irrespective of the stressor, people who experience this level of symptoms have the same treatment options available to them. That is, people with mild to moderate symptoms are provided with a similar level of intervention.

Individuals who faced conflict or organisational stressors took the same amount of sick leave or recreation leave, overall. However, those individuals who experienced conflict tended to use more recreational leave and to seek help from medical services than the organisational group in the time leading up to the

claim. It has been suggested that individuals may utilise sick leave as a strategy for dealing with occupational stress and when there is a subsequent lodgement of a workers compensation claim for psychological injury (Dollard et al., 1999; Haines et al., 2002).

Upon closer examination of the experience of interpersonal stress, it could be argued that when faced with escalating conflict at work there is an inclination to escape the immediate situation and avoid dealing with the other person involved in the conflict. Strategies to facilitate this escape and avoidance would then be sought. In contrast, in the case of escalating organisational demands, a person may feel driven to persist to the point of being unable to cope any further out of a sense of obligation to complete work duties and to not increase the burden on fellow employees by leaving work for them to undertake.

With regard to return to work outcomes, there were no differences between individuals who were confronted with interpersonal conflict compared with organisational stressors in the number of return to work attempts that had been made. The organisational stress group were placed on restrictions upon a return to work in significantly more cases that the interpersonal group, which would be expected given that organisational stress claims related to situational and modifiable factors at work. There were no differences with regard to alternative duties, or the need for retraining, returns to work to the same position on a full-time basis, a different position on a full-time basis, or the same position on a part-time basis, or a different position on a part-time basis. Additionally, there were no group differences for individuals who did not return to work or cases that remained unresolved.

Clearly, regardless of the stressors faced, the process of return to work or otherwise did not significantly differ as a function of the nature of the stressor. This may be because the needs of individuals from both groups are the same. Alternately, it may be because there is only one rehabilitation response available irrespective of the needs of the individual. If it is the latter, it would be reasonable to suggest that rates of successful return to work could be improved upon by further considering the specific needs of individuals as a function of the workplace stressor that they experienced.

When analysing workers' compensation behaviour, it was determined that there was no difference between individuals who had lodged a claim based on interpersonal conflict compared with organisational stress in relation to having lodged previous claims. Also, there was no difference between groups with regard to the percentage who lodged a common law claim as a result of the experience of their work stressor. This suggests that there would be no reason to suspect that individuals involved in either interpersonal conflict or exposed to an organisational stressor had a history of involvement in the compensation system for the purpose of financial gain. Although there is evidence that suggests that types of personality traits and psychological difficulties may influence the likelihood of becoming involved in interpersonal conflict (e.g., Brondolo et al., 1998; Gunthert, Cohen & Armeli, 1999; Sanders, Smith, & Alexander, 1991), the current study did not support tis proposition.

It was found that those individuals who experienced interpersonal conflict demonstrated a higher rate of premorbid psychiatric problems, which is consistent with findings from previous research (Romanov et al., 1996). Bender

(2005) found that individuals with particular types of personality disturbance or disorder often experiences impairments in interpersonal relationships. It appears as though particular personality styles are associated with interpersonal difficulties and, of course, it would not be unusual to observe occupational problems when there is the presence of psychiatric condition. However, workers' compensation legislation indicates that if a worker suffers a psychological injury arising out of and in the course of his employment and to which his employment contributed to a substantial degree, then an employer is liable to pay compensation (http://www.thelaw.tas.gov.au). In this way, individuals who have pre-existing psychological or psychiatric difficulties are not precluded from receiving compensation if it can be established that the workplace contributed to the development of the injury. Furthermore, it should also be noted that interpersonal difficulties did not automatically translate to the lodgement of a workers' compensation claim for psychological injury. That is, involvement in the workers' compensation process after interpersonal conflict at work did not occur more frequently than compensation involvement after facing organisational stressors. Therefore, although there may be an increased likelihood of particular individuals demonstrating interpersonal difficulties, these individuals are not over-represented in the compensation system.

Despite the lack of group differences in relation to overall impairment, leave away from work, psychological functioning, history of workers' compensation involvement, treatment services sought and certain return to work outcomes, as hypothesized, there was clear evidence that individuals who lodged a claim after interpersonal conflict at work were treated differently within the

compensation system when compared with those who faced organisational stressors. Firstly, individuals who had been exposed to conflict were more likely to have their claim formally disputed by the employer and were also more likely to have to undergo a period of time where there was no payment of salary benefits compared with their counterparts who were stressed as a result of exposure to organisational stressors. As predicted, these findings suggest that interpersonal conflict at work as a stressor may be more difficult to measure objectively as compared with organisational stressors such as excessive workloads or poor working conditions. Therefore, it is not surprising to observe that interpersonal conflict claims are associated with more disputation. The impact of disputation and the financial disincentives associated with the compensation system have been noted (e.g., Armstrong & Lyth 1999; Greenough & Fraser, 1989; Pergola et al., 1999).

The results of the current study indicate that the negative aspects of the workers' compensation process normally associated with impediments to recovery are more present for individuals who lodge a claim due to interpersonal conflict compared with organisational stressors, due to inability to explicitly measure interpersonal stressors. It may be the case that individuals who lodged a claim for psychological injury after conflict would be more susceptible to development of compensation neurosis following psychological injury. Compensation neurosis involves a combination of emotional and physical symptoms that develop after a compensable or litigious injury in order to obtain compensation (School of Occupational Therapy Curtin University, 2001, p.29).

In addition to facing periods of time without financial benefits and experiencing more disputation, the interpersonal conflict claimants were required to undergo more psychiatric reviews than claimants who faced organisational stressors. The negative impact of inconsistency between medical opinions about workers has been identified (Armstrong & Lyth 1999; Greenough & Fraser, 1989; Pergola et al., 1999). The results from the current study suggest that, once again, the lodging of a compensation claim after interpersonal conflict at work is associated with the negative aspects of the process such as having to undergo reviews to a greater extent than when a claim is lodged after exposure to organisational stressors.

In summary, individuals who had lodged a claim based on conflict could not be differentiated in terms of history of workers' compensation involvement, treatment services sought, time away from work and return to work outcomes. In addition, there was some evidence to suggest that interpersonal conflict at work results in more severe psychological symptomatology in relation to depressive symptoms, somatic symptoms, and cognitive symptoms, compared with individuals facing organisational stressors. However, despite these factors, it was clear that the workers' compensation process was more problematic for claimants if their psychological injury developed after interpersonal conflict rather than organisational stressors.

CHAPTER SIX

SUMMARY AND CONCLUSIONS

6.1 Summary and integration of results

The aim of this investigation was to examine both the variables associated with experience of workplace stress and the experience itself. Based on Berry's (1998) conceptualisation of occupational stress, personal and environmental factors that contribute to the development of psychological injury after exposure to either organisational stressors or interpersonal stressors were investigated. Psychological and psychophysiological measures were also obtained to understand whether the experience of interpersonal stressors are more severe that organisational stressors at the time of exposure. Finally, an evaluation of the workers' compensation process and return to work outcomes was made. The empirical evidence indicates the importance of the nature of a stressor with which an individual is confronted on their experience of stress and on various outcomes.

6.2 Overall demographic findings

It was evident that there were some factors that were uniform between the two different stressor groups. Firstly, sex did not appear to be associated with either of the two stressor types and also did not appear to affect whether an individual developed clinical symptoms or not. Both males and females were equally likely to become involved in either interpersonal conflict or be exposed to organisational stressors at work. Previous literature investigating the role of sex in the relation to occupational stress has been somewhat inconsistent. There are a number of studies that have demonstrated that the development of

psychological injury is not linked to sex (e.g., Marini et al., 1995; Smith et al., 2000), whereas others indicate a relationship specifically for women (e.g Licht 2000; Stokes et al., 1995) for reasons such as conflict between work and family pressures (Lundberg & Frankenhaeuser, 1999). The results from the first study support the proposition that both sexes are equally likely to be involved in organisation or interpersonal stressors. However, results from the third study demonstrated that more woman than would be expected lodged a workers' compensation claim for psychological injury as a result of interpersonal conflict, whereas males more often lodged claims after exposure to organisational stressors. There is literature that indicates involvement in interpersonal conflict causes more work disability for female employees compared with male employees (Appelberg et al., 1996; Hutri & Lindeman, 2002). It appears that the results from the current series of studies indicates that although both males and females are equally as likely to engage in conflict, it is a more debilitating experience for woman and, therefore, increases the likelihood of lodging a workers compensation due to the effects of the conflict experience.

It was evident that there was some association between age and the onset of clinical symptoms. There was also evidence to suggest that along with age, duration of employment and education influenced the development of clinical symptoms associated with interpersonal conflict. According to some researchers, older people enjoy greater autonomy in their work due to their broader professional experience and tend to report less often than their younger colleagues that they worry about the consequences of a mistake. They also report less conflict, either in their relations with the public or with colleagues (Guignon & Pailhe, 2004). However, the current study suggests that older employees, who

possess a tertiary education and who have been employed for a longer period of time develop clinical symptoms and become involved in interpersonal conflict situations at work. It may be the case that employees who fit this demographic tend to hold more senior positions, are burdened with greater responsibilities and are involved in managing other people, making them vulnerable to conflictual interactions. Other research has demonstrated the link between educational qualifications/level and job satisfaction. Kirkcaldy, Brown and Cooper (1998) found that job satisfaction, especially satisfaction with personal relationships at work as well as satisfaction with the organisational structure, was lowest for the most highly educated personnel for a group of senior police officers. Previous research has also identified the link between duration of employment and occupational stress (Dignam et al., 1986; Kirkcaldy & Siefen, 1991). It should be noted that there was also evidence to suggest that older employees involved in interpersonal conflict did not necessarily develop clinical symptoms.

There was no association between marital status and type of stressors or whether an individual had developed clinically significant stress. Previous literature has been inconsistent with some studies suggesting a possible link between marital status and occupational stress (e.g., Calnan et al., 2001; Smith et al., 2000) due to factors such as clashes between the demands of work and home, (e.g. Phillips-Miller et al., 2000). However, it has also been proposed that spouses or partners may moderate the demands placed on the individual at work by providing support (e.g., Long & Gessaroli, 1989). The current study demonstrated that, overall, marital status does not influence either the development of clinically significant occupational stress or the nature of the stressors with which an employee is faced.

No link was determined between occupational stress or type of stressors that an individual faced and the length of time that they were employed in their present job or whether the individual was employed on a full-time or part-time basis, which was inconsistent with some previous research which suggested there may be a greater risk of stress with full-time employment than part-time employment (Lynch, 1999; Smith et al., 2000). However, it has also been suggested that changing working hours from full-time work to part-time work may be an attempt to fulfil other needs rather than a stress-reduction strategy (e.g., Lee et al., 2002). Furthermore, other studies have also failed to identify the role of time that an employee had worked in the present job and whether the individual was employed on a full-time or part-time basis, on occupational stress (Carson et al., 2003). The current study provides evidence that suggests that full time or part time employment cannot prevent the development of occupational stress and the type of stressors with which a worker is faced.

In summary, it appears that sex and marital status do not predispose individuals to becoming involved in any particular type of stressor, or to developing clinical stress. However, there is evidence to suggest that age, level of education and duration of employment are linked with either involvement in interpersonal conflict or the development of clinical symptoms.

6.3 The role of personal contributors

There were no differences between the two samples or the two stressor types and spiritual/philosophical coping resources, physical coping resources or social coping resources. There was also no difference between the groups in

terms of self-care or rational/cognitive strategies. However, differential patterns of coping resources were evident. It became clear that certain groups had available to them particular coping resources for use when faced with stressors. It appears that the availability of cognitive coping resources, emotion focused resources, self-care strategies and recreation were most beneficial in preventing the development of clinical symptoms for individuals who faced either type of stressor.

The role of coping has been demonstrated previously and it is argued that individuals who possess coping resources, through problem-solving efforts are able to transform or compensate for stressors that they cannot avoid (Thoits, 2006). Cognitive coping resources refer to the extent to which individuals maintain a positive sense of self-worth, a positive outlook toward others, and optimism about life in general. The role of a positive self-concept in adaptation to stress is well documented (e.g., Pearlin & Schooler, 1978). Emotional coping resources refer to the extent to which individuals are able to accept and express a range of affect. The role of emotional coping resources has also been found to ameliorate long-term negative consequences of stress (Hammer & Marting, 1988). Other studies have demonstrated that certain coping resources may be more useful that other in the face of particular stressors at work (e.g. Terry et al., 1995).

There was some indication that individuals involved in interpersonal conflict tended have available to them use emotion-focused resources to a greater extent than individuals who faced organisational stressors. There was also some indication that individuals involved in interpersonal conflict who did not have

recreation and social support resources available displayed clinical significant symptoms of stress. It has been determined that leisure or recreation is important as a means of coping with work stress because of its active and challenging nature and because of its more passive or recuperative nature (Trenberth & Dewe, 2002). Of course, the role of physical, social and spiritual/philosophical coping resources has also been established. Stable and consistent values derived from religious, familial, or cultural tradition or from personal philosophy are believed to assist individuals to define the meaning of potentially stressful events and to prescribe strategies for responding effectively. Engaging in health-promoting behaviours is also believed to contribute to increased physical well-being and physical wellness is believed to decrease the level of negative responses to stressors and to enable faster recovery. Similarly, the degree to which individuals are imbedded in social networks that can provide support in times of stress has been found to be helpful during stressful times (Hammer & Marting, 1988). The current study indicates that recreation and social resources are particularly important in preventing the development of clinical stress when dealing with interpersonal conflict at work.

Interestingly, it was found that individuals who had not been deemed as clinically stressed had a higher level of irrational belief endorsement, regardless of the type of stressor they faced, compared with the clinical groups who faced both interpersonal and organisational stressors it has been argued that the effects of these types of endorsement of specific irrational beliefs predisposes an individual to the experience of stress because of the negative interpretation placed on life events by such individuals (e.g., Dyck, 1992). However, the

current study did not support a link between these factors, similar to another study utilising and Australian sample (Carson et al., 2003). These finding suggest that although irrational belief endorsement influence the stress response due to the way individuals interpret invents, there may be various other factors which contribute to the severity of the stress experience.

In summary, it appears that particular coping resources are more useful when facing either interpersonal conflict or organisational stressors in preventing the development of a clinical stress response. Additionally, the role of irrational beliefs appeared to be of minimal influence in relation to the type of stressor that an individual becomes involved with and in relation to the development of clinical symptomatology.

6.4 The role of environmental contributors

When examining work environment factors, there were no differences between the groups in relation to autonomy, task orientation, clarity, innovation, physical comfort, involvement or control, or were there differences in terms of job satisfaction. Autonomy at work has been found to improve job satisfaction (Flanagan & Flanagan, 2002; Steel, 2001) and decrease work stress (Buessing & Glaser, 2000). It has been determined that low autonomy, task orientation, clarity, innovation, and physical comfort can lead to feelings of emotional exhaustion, symptomatic of occupational stress (Constable & Russell, 1986). The current study suggests that the impact of these variables did not differ depending

on whether a worker was involved in interpersonal conflict or whether they faced organisational stressors.

The negative impact of these environmental conditions on employee health and well-being has been identified. For example Styhre et al. (2002) suggested that work stress develops because excessive demands at work lead to difficulties prioritising work activities and communicating with colleagues. Statistics suggest that workload pressures account for 37% of work related stress claims and almost half of the claim costs in this area (WorkCover Corporation of South Australia, 1999). Extensive research has established that excessive work pressure and workload can result in the development of clinically significant stress (e.g., Carayon et al., 1995; Sparks & Cooper, 1999) and the current study provided further support for this notion.

Studies have found that work environments characterised by low levels of staff support may be likely to trigger a stress response (McCalister et al., 2006), however, it has also been suggested that a lack of support removes the motivation to continue unassisted when experiencing other workplace stressors (Carson et al., 2003). Many studies have suggested that the presence of social support can lessen or even eliminate the deleterious effects of stress. However, other studies suggest that the buffering effects of social support are present only with regard to mental and physical health variables such as anxiety, depression, irritation, and somatic symptoms and not for job-related strains such as job dissatisfaction, boredom, dissatisfaction with work load (LaRocco et al., 1980). Nevertheless, the importance of social support has been noted and the current study provides support for this. Role overload and role ambiguity also have been identified as

factors that contribute to the development of occupational stress (Carayon et al., 1995; Dunnett, 1998; Sparks & Cooper, 1999).

However, it was also found that for individuals facing interpersonal conflict at work, work pressure, a lack of staff support, role issues, a poor work environment and poor peer cohesion were consistently more of an issue compared with individuals who faced organisational stressors. It may be the case that individuals who are involved in interpersonal conflict would tend to view other workplace circumstances more negatively. Alternatively, it would not be unreasonable to suggest that work environments that are characterised by these particular environmental contributors are likely to facilitate interpersonal conflicts among employees.

In summary, the importance of staff support, role issues autonomy, task orientation, clarity, innovation, physical comfort, involvement or control were identified. For individuals involved in interpersonal conflict, it appears that work pressure, a lack of staff support, role issues, a poor work environment and poor peer cohesion present as more of a concern.

6.5 Psychological and psychophysiological reactions to interpersonal conflict and organisational stressors.

There were no apparent psychophysiological differences in the experience of interpersonal conflict compared with facing organisational stressors as measured by heart rate. There were increases in heart rate when individuals were faced with either an interpersonal stressor or an organisational stressor,

consistent with previous research which has identified the role of physiological changes in times of stress (e.g., Vrijkotte, van Doornen, & de Geus, 2000). Indeed, work stress has repeatedly been associated with an increased risk for cardiovascular disease, which has been explained to be a result of exaggerated cardiovascular reactivity to work stressors. The current study provides further evidence for this problem. The study did not provide evidence to suggest increased psychophysiological activity when facing interpersonal conflicts at work compared with organisational stressors suggesting a similar stress experience for individuals regardless of the type of stressor.

It was evident that anxiety was heightened when facing all stressors, consistent with previous research (e.g., Burke, 1987; Burke, Greenglass, & Schwarzer, 1996). Additionally, within the compensation process there were no differences between the groups in relation to diagnosis of anxiety disorders. It appears that feelings of anxiety occur when faced with any type of stressor. The outcomes of exposure to anxiety provoking events have been demonstrated (Burke, 1987; Burke et al., 1993, Burke et al., 1996).

It was evident that the experience of interpersonal conflict was markedly different than the experience of organisational stressors in terms of negative emotions of fear and anger. Although all individuals responded with heightened feelings of anger and fear when faced with stressful situations at work compared with non-stressful situations, consistent with previous research (e.g. Haines, Williams, & Carson 2002), exposure to interpersonal stressors appeared to trigger a different response at the exact moment that the stressful event was taking place and also in the aftermath of the event. During this time, the

experience of interpersonal conflict brought about a surge in feelings of anger and fear that did not occur for those individuals who were exposed to the organisational stressful event. This is consistent with previous studies (e.g Bongard, & al'Absi, 2005; Hahn, 2000).

Additionally, there appeared to be no resolution of negative psychological reactions to interpersonal conflict, which was not the case when facing organisational stress, consistent with a study by Doby and Caplan (1995). It has been found that work stress has negative effects on family and home life (Crouter, Bumpus, Maguire, & McHale, 1999; Muchinsky, 2000). Work stress has also been shown to negatively impact on marital cohesion (Robinson et al., 2001).

In summary, it appears that there are no differences in psychophysiological responses when individuals face either interpersonal or organisational stressors. The experience of stress resulted in increases in heart rate at the time of exposure to the stressor. However, the psychological consequences of exposure to interpersonal conflict differed from those that occurred when individuals faced organisational stressors.

6.6 The workers' compensation experience after interpersonal conflict and organisational stressors

When analysing workers' compensation behaviour, it was determined that there was no difference between individuals who had lodged a claim based on interpersonal conflict compared with organisational stress in relation to having lodged previous claims or common law claims. There has been some literature

that suggests individuals with specific personality types are prone to interpersonal conflicts (Sanders et al., 1991) or to developing stress (Schwarzer, 1991). However, the current study demonstrated that individuals who had lodged a claim based on interpersonal conflict could not be differentiated from claimants who faced organisational stressors as having previous experience or involvement with the compensation system.

Aside from no differences in previous experience with the compensation process, regardless of type of stressor, there were no significant differences between the groups ion relation to their functioning the workplace and their level of impairment. Despite some evidence from the current study to indicate that the interpersonal conflict stress experience might be more severe and long lasting, it appears as though these individuals still manage to function outside or work at the same level as their counterparts who face organisational stressors. Furthermore, in relation to treatment services sought by individuals, there were no differences for the amount of consultations with a GP, psychiatrist, psychologist or other treating professionals or the prescription of medications between individuals who had lodged a workers' compensation claim based on either interpersonal conflict or exposure to organisational stressors.

There were no significant differences between the groups in relation to major stressful events outside of work that would contribute to work stress experience. In the time leading up to the claim there were no significant difference in the amount of sick leave or recreation leave taken, and overall there were no differences in the time away from the workplace. There were also no differences in the number of return to work attempts made, whether individuals

returned on a full or part time basis, to a same or different position, or in the number of cases where there was no return to work or the situation was left unresolved.

Clearly, individuals who had lodged a claim based on conflict could not be differentiated in terms of history of workers' compensation involvement, functioning outside the workplace, treatment services sought and certain return to work outcomes. Nevertheless, there was evidence to suggest that lodging a claim after developing psychological injury as a result of interpersonal conflict at work would be more likely to be disputed than if a claim was lodged after exposure to work stressors. Furthermore, the interpersonal conflict claimants were more likely to have to undergo a period of time where there was no payment of salary benefits compared with their counterparts who were stressed as a result of exposure to organisational stressors. Additionally, the interpersonal conflict claimants were required to undergo more psychiatric reviews than claimants who faced organisational stressors. The negative impact of aspects of the workers' compensation process such as disputation, inconsistency between medical opinions and financial disincentives, has been identified (Pergola et al., 1999). The results from the current study suggest that the workers' compensation process can be more problematic for claimants who developed psychological injuries as a result of interpersonal work conflicts.

It was also found that in relation to the onset of stressors, there tended to be an insidious onset when interpersonal conflict was occurring. According to the Chartered Institute of Environmental Health (2006), insidious, incipient forms of conflict at work are common and harmful. It has been suggested previously that

the making of a case for a workers' compensation claim may be more difficult for individuals who experienced conflict at work than it would be for a more objective and obvious workplace stressor such as work overload (Carson et al., 2003). It is likely that an insidious build of stress due to the cumulative effects of workplace conflict would be particularly difficult to prove in the making of a compensation claim.

In relation to premorbid functioning, individuals experiencing interpersonal conflict also had a higher rate of prior existing psychiatric problems. There is evidence to suggest that individuals who have premorbid psychological vulnerability show poorer use of adaptive coping methods (Noronha & Faust, 2006). It may be that particular individuals are predisposed to becoming involved in interpersonal conflict and also have difficulty coping when faced with stressors.

In relation to return to work, the interpersonal conflict group were not likely to have restrictions placed on upon their return to work, which is likely to be a result of the nature of organisational stressor, which can be modified in a way that cannot occur with interpersonal conflict.

In relation to lodging a workers' compensation claim, as would be expected, more of the clinically stressed individuals lodged a claim than those who were not clinically stressed. Previous studies have shown that individuals who lodge compensation claims often report clinically significant anxiety and distress (Carson et al., 2003). Of course, a number of other factors aside from the actual psychological injury have been found to influence the decision to

lodge a workers' compensation claim. For example, it has been found that acute stressors compared with chronic stressors may be less likely to be disputed (Haines et al., 2002) and this may influence whether an individual decides to lodge a claim after exposure to such a stressor.

In summary, it appears that there is a tendency for a greater level of disputation, financial disincentives and other negative aspects of the workers' compensation process to be associated when claims are lodged for psychological injury after exposure to interpersonal conflict.

6.7 Psychological symptomatology following exposure to interpersonal conflict or organisational stressors

There was evidence to suggest that feelings of anxiety are similar in terms of severity at the time that individuals are faced with either interpersonal conflict or organisational stressors. However, when comparisons were made for symptoms of anxiety and phobic anxiety, it appeared that for individuals who had developed clinical stress as a result of interpersonal conflict, anxiety was a major concern. It appeared that although the interaction of interpersonal conflict was associated with feelings of fear, individuals also reported significantly heightened feelings of anger which did not occur with organisational stressors. It may be that feelings of anxiety increase sometime after the actual interpersonal conflict and present as more of an issue after the development of clinical symptoms. It was also apparent that at the time that a workers compensation claim was lodged, claimants who experienced conflict were more likely to experience depressive, somatic and cognitive symptoms. They were also more likely to receive an adjustment disorder diagnosis, although it should be noted

that a diagnosis of Adjustment Disorder can be made when there are predominantly anxiety symptoms.

Not unexpectedly, it was found that exposure to interpersonal conflict led to high levels of interpersonal strain. Both organisational stressors and interpersonal stressors led to vocational and psychological strain, consistent with previous research (e.g., Litchfield & Gow, 2002). However, it was evident that individuals experiencing conflict at work reported higher symptoms of interpersonal sensitivity, hostility, psychoticism and paranoid ideation, than individuals who were faced with organisational stressors and, usually, the clinically stressed individuals in this group reported higher levels than those who faced conflict but were not clinically stressed. In situations of interpersonal conflict, paranoid ideation is thought to be manifestation of the suspiciousness that would result from disturbed relationships with colleagues and supervisors (e.g., Carson et al., 2003). Indeed, increased feelings of sensitivity, paranoia and hostility would result from being involved in serious interpersonal work conflicts. The implications of strain and hostility have been established. For example, hostility has been found to increase an individual's vulnerability to the development of coronary heart disease (Smith & Ruiz, 2002). It was clear that although both types of stressors lead to vocational and psychological strain, the experience of interpersonal conflict lead to additional indicators of interpersonal strain.

The clinical groups reported the highest levels of strain in comparison with the non-clinical groups, which was not unexpected. This was also the case for obsessive compulsive, somatisation and depressive symptoms as well as overall

negative psychological symptoms. Strain has been identified as a symptom of occupational stress. Indeed, there is ample evidence that symptoms of vocational strain, for example absenteeism or poor work commitment, are present in individuals who are clinically stressed (e.g., Litchfield & Gow, 2002). Similarly, depression, anxiety, irritability and other symptoms of psychological strain have been shown to occur when individuals are faced with workplace stressors (e.g., Frone, 2000; Guest & Drummond, 1992; Litchfield & Gow, 2002). Research has demonstrated that use of problem-focused coping resources is particularly useful in decreasing psychological strain (e.g., Litchfield & Gow, 2002). It has been found that when psychological strain develops, there is an increased risk of the development of physical ailments such as carotid atherosclerosis (Wolff et al., 2005) in addition to the impact of psychological difficulties.

In summary, there is evidence to suggest that while exposure to both organisational stressors and interpersonal stressors can result in a range of negative psychological symptomatology, certain symptoms are associated with the experience of work place interpersonal conflict.

6.8 Assistance Program Sought

The importance of the employee assistance program was noted. It was evident that in general, the clinical groups did not have employee assistance services available to the same degree as the non-clinical groups. The use of Employee Assistance Programs has been shown to result in large declines in absenteeism, the utilisation of sickness benefits, work-related accidents and workers' compensation claims (SAMSHA, 1995). The current study provides further evidence for the importance of employee assistance services in the

prevention and management clinically significant occupational stress. It was also found that when the service was made available, more of the clinically stressed individuals facing organisational stressors used the counsellors than the non-clinical organisational group.

6.9 Limitations of the current study

There was a clear difference in the sizes of groups for those individuals who had been identified as clinically stressed compared with those who had not and who remained in the work place. Indeed, it was difficult to recruit participants for this sample because of the burden participation would place on these individual. However, the statistical package used in the analyses of data from these individuals addressed this limitation. Nevertheless, the interpretation of the results with regard to their generalisability should take into account the selected nature of the clinical sample.

There was also the problem of missing data. In order to gain a comprehensive understanding of the variables outlined in Berry's model, a number of questionnaires were utilised. It was clear that, in some cases, participants were not able or willing to complete the entire questionnaire package, which resulted in missing data.

Heart rate was the only psychophysiological measure of stress recorded. Ideally, other measures of psychophysiological arousal should have been used because of the potential for idiosyncrasy in psychophysiological responding (Flemming & Baum, 1987). However, other research has suggested that heart

rate is the most reliable indicator of arousal changes in imagery studies (Blanchard & Buckley, 1999).

Although participants were selected on the basis of involvement in interpersonal conflict as the major work stressor, the results suggest that these individuals may have been experiencing other workplace stressors that would arise in a work environment characterised by conflict. It would be interesting to distinguish those participants who solely were influenced by interpersonal conflict and those who experienced interpersonal conflict on a background of other problems at work.

Study 1, the questionnaires study and Study 2, the experimental study were retrospective in nature. It could be argued that there may be a benefit from developing a prospective study that controlled the exposure to organisational and interpersonal stressors. However, despite the obvious ethical implications of deliberately exposing people to work stressors, there would be a risk that the artificial nature of the work stress experience would prevent a genuine stress response. This would result in confounding outcomes of the study. Therefore, a decision was made in studies 1 and 2 to measure actual, though retrospective responses to work stressors in the context of people's work experience.

6.10 Directions for future research

As yet, there appears to have been no investigation of the influence of imbalances in power between individuals experiencing conflict. For example, it would be useful to examine psychological and psychophysiological responses to

interpersonal conflict when conflict is occurring between supervisor and employee compared with conflict between similarly ranked individuals. In addition, conflict characterised by perceived malicious intent such as harassment and bullying in the workplace should be considered because these may alter the extent to which an individual perceives a power imbalance, even when one does not exist by virtue of employment level.

It would also be useful to examine the importance of rehabilitation efforts that specifically target individual stressors, or indeed, organisational responses to interpersonal conflict and how these efforts potentially impact upon the ensuing workers' compensation process.

Finally, an investigation0 into organisational reactions to conflict that triggers psychological injury would be useful in order to determine ways in which the problems associated with the differential experience with the workers' compensation process can be avoided.

REFERENCES

REFERENCES

Abouserie, R. (1996). Stress, coping strategies and job satisfaction in university academic staff. *Educational Psychology, 16,* 49-56.

Abramis, D.J. (1994). Relationship of job stressors to job performance: Linear or an inverted-U? *Psychological Reports, 75,* 547-558.

Adler, S., & Atlas, R. (2004) Legal aspects of work-related mental illness and disorder. *Israel Journal of Psychiatry and Related Sciences, 41,* 277-286.

Adler, S., & Schochet, R. (1999). Workers' compensation and psychiatric injury definition. *International Journal of Law and Psychiatry, 22,* 603-616.

Ahmad, A. (2005). Perceived occupational stress: A comparative study of men and women weavers of textile industries. *Social Science International, 21,* 29-38.

American Psychiatric Association (2000). *The diagnostic and statistical manual for mental disorders (4th Edition).* Washington, DC: Author.

Amick, B.C., Kawachi, I., Coakley, E.H., Lerner, D., Levine, S. O., & Colditz, G.A. (1998). Relationship of job strain and iso-strain to health status in a cohort of women in the United States. *Scandinavian Journal of Work, Environment and Health, 24,* 54-61.

Anderson, W.J., Cooper, C.L., & Willmott, M. (1996). Sources of stress in the National Health Service: A comparison of seven occupational groups. *Work and Stress, 10,* 88-95.

Anshel, M.H. (2000). A conceptual and implications for coping with stressful events in police work. *Criminal Justice and Behavior, 27,* 375-400.

Appelberg K. Romanov K., Honkasalo M.-L. & Koskenvuo M. 1991. Interpersonal Conflicts at Work and Psychosocial Characteristics of Employees. *Social Science and Medicine,, 32,* 1051-1056.

Appelberg, K., Romanov, K., Heikkilae, K., Honkasalo, M.L., & Koskenvuo, M. (1996). Interpersonal conflict as a predictor of work disability: A follow-up study of 15,348 Finnish employees. *Journal of Psychosomatic Research, 40,* 157-167.

Armstrong, F.J., & Lyth, J.R. (1999). The occupational therapist's role with workers' compensation and the ADA: Successful work accommodations and strategies for employer and service provider partnership. *Occupational Therapy in Health Care, 11,* 9-21.

Armstrong-Stassen, M. (1997). The effect of repeated downsizing and surplus designation of remaining managers: An exploratory study. *Anxiety, Stress and Coping, 10,* 377-384.

Arvay, M.J., & Uhlemann, M.R. (1996). Counsellor stress in the field of trauma: A preliminary study. *Canadian Journal of Counselling, 30,* 193-210.

Bacharach, S.B., Bamberger, P., & Conley, S. (1991). Work-home conflict among nurses and engineers: Mediating the impact of role stress on burnout and satisfaction at work. *Journal of Organizational Behavior, 12,* 39-53.

Balick, L.R., & Herd, J.A. (1987). Assessment of physiological indices related to cardiovascular disease as influenced by job stress. In J.M. Ivancevich & D.C. Ganster (Eds.), *Job Stress: From theory to suggestion* (pp. 103-115). New York: Haworth Press.

Barling, J. (1990). *Employment, stress and family functioning.* Oxford: Wiley.

Barling, J., & Kelloway, E.K. (1996). Job insecurity and health: The moderating

role of workplace control. *Stress Medicine, 12,* 253-259.

Barling, J., & Kryl, I.P. (1990). Moderators of the relationship between daily work stressors and mood. *Work and Stress, 4,* 319-329.

Barling, J., & MacIntyre, A.T. (1993). Daily work role stressors, mood and emotional exhaustion. *Work and Stress, 7,* 315-325.

Barling, J., & Phillips, M. (1993). Interactional, formal, and distributive justice in the workplace: An exploratory study. *Journal of Psychology, 127,* 649-656.

Beck, A.T. (1967). *Depression.* New York: Harper and Row.

Beehr, T. A. (1995). Psychological stress in the workplace. New York, NY: Rutledge.

Begley, T.M., & Boyd, D.P. (1992). Work stress and health outcomes: The impact of personal orientations among CEOs in smaller business. *Journal of Managerial Issues, 4,* 62-83.

Bender, D.S. (2005). The therapeutic alliance in the treatment of personality disorders. *Journal of Psychiatric Practice, 11,* 73-87.

Benishek, L.A., & Lopez, F.G. (1997). Critical evaluation of hardiness theory: Gender differences, perception of life events, and neuroticism. *Work and Stress, 11,* 33-45.

Ben-Zur, H., & Yagil, D. (2005). The relationship between empowerment, aggressive behaviours of customers, coping, and burnout. *European Journal of Work and Organizational Psychology, 14,* 81-99.

Berry, L.M. (1998). *Psychology at work: An introduction to industrial and organizational psychology (2nd edn.).* Boston: McGraw Hill.

Berryman-Fink, C., & Brunner, C. (1987). The effects of sex of source and target on interpersonal conflict management styles. *The Southern Speech Communication Journal, 53*, 38-48.

Bjoerkqvist, K., Oesterman, K., & Hjelt-Baeck, M. (1994). Aggression among university employees. *Aggressive Behavior, 20,* 173-184.

Blanchard, E.B., & Buckley, T.C. (1999). *Psychophysiological assessment of posttraumatic stress disorder.* In P.A. Saigh & J.D. Bremner (Eds.), Posttraumatic stress disorder: A comprehensive text (pp.248-266). Sydney: Allyn & Bacon.

Bluen, S.D., & Barling, J. (1987). Stress and the industrial relations process: Development of the Industrial Relations Event Scale. *South African Journal of Psychology, 17,* 150-159.

Bluen, S.D., Barling, J., & Burns, W. (1990). Predicting sales performance, job satisfaction, and depression by using the Achievement Strivings and Impatience-Irritability dimensions of Type A behavior. *Journal of Applied Psychology, 75,* 61-81.

Blythe, J., Baumann, A., & Giovanetti, P. (2001). Nurses' experiences of restructuring in three Ontario hospitals. *Journal of Nursing Scholarship, 33,* 61-68.

Bogg, J., & Cooper, C.L. (1994). An examination of gender differences for job satisfaction, mental health, and occupational stress among senior U.K. civil servants. *International Journal of Stress Management, 1,* 159-172.

Bogg, J., & Cooper, C.L. (1996). An examination of gender differences for job satisfaction, mental health, and occupational stress among senior U.K. civil servants. *International Journal of Stress Management, 1,* 159-172.

Bohle, P., & Quinlan, M. (2000). *Managing occupational health and safety: A multidisciplinary approach* (2nd ed.). South Yarra: MacMillan Publishers.

Bohlin, G., Eliasson, K., Hjemdahl, P., Klein, K., & Frankenhaeuser, M. (1986). Pace variation and control of work pace as related to cardiovascular, neuroendocrine and subjective responses. *Biological Psychology, 23,* 247-263.

Bolger, N., DeLongis, A., Kessler, R.C., & Schilling, E.A. (1989). Effects of daily stress on negative mood. *Journal of Personality and Social Psychology, 57,* 618-624.

Bongard, S, & al'Absi, M. (2005). Domain-specific anger expression and blood pressure in an occupational setting. *Journal of Psychosomatic Research, 58,* 43-49.

Boroson, W., & Burgess, L. (1992). Survivors' syndrome. *Across the Board, 29,* 41- 45.

Boyd, N. (1995). Violence in the workplace in British Columbia: A preliminary investigation. *Canadian Journal of Criminology, 37,* 491-519.

Brain, K.L., Haines, J., & Williams, C.L. (1998). The psychophysiology of self-mutilation: Evidence of tension reduction. *Archives of Suicide Research, 4,* 227-242.

Brondolo, E., Karlin, W., Alexander, K., Bobrow, A., & Schwartz, J. (1999). Workday interpersonal communication and ambulatory blood pressure among New York City Traffic Agents. *Psychophysiology, 36,* 86-94.

Brondolo, E., Masheb, R., Stores, J., Stockehammer, T., Tunick, W., Melhado, E., Karlin, W.A., Schwartz, J., Harbug, E., & Contrada, R.J. (1998). Anger-related traits and response to interpersonal conflict among New York City

traffic agents. *Journal of Applied Social Psychology, 28,* 2089-2118.

Bruk-Lee, V., & Spector, P.E. (2006). The social stressors-counterproductive work behaviors link: Are conflicts with supervisors and coworkers the same? *Journal of Occupational Health Psychology, 11,* 145-156.

Bruning, N.S., & Frew, D.R. (1987). Effects of exercise, relaxation and management skills training on physiological stress indicators: A field experiment. *Journal of Applied Psychology, 72,* 515-521.

Buessing, A., & Glaser, J. (2000). Four-stage process model of the core factors of burnout: The role of work stressors and work-related resources. *Work and Stress, 14,* 329-346.

Burke, R.J. (1987). Burnout in police work: An examination of the Cherniss model. *Group and Organizational Studies, 12,* 174-188.

Burke, R.J. (1993). Work-family stress, conflict, coping, and burnout in police officers. *Stress Medicine, 9,* 171-180.

Burke, R.J., & Greenglass, E. (1993). Work stress, role conflict, social support, and psychological burnout among teachers. *Psychological Reports, 73,* 371-380.

Burke, R.J., Greenglass, E.R., & Schwarzer, R. (1996). Predicting teacher burnout over time: Effects of work stress, social support, and self-doubts on burnout and its consequences. *Anxiety, Stress and Coping: An International Journal, 9,* 261-275.

Burke, R.J., & Nelson, D.L. (1997). Downsizing and restructuring: Lessons from the firing line for revitalizing organizations. *Leadership and Organization Development Journal, 18,* 325-334.

Burke, R.J., & Weir, T. (1980). The Type A experience: Occupational and life

demands, satisfaction and well-being. *Journal of Human Stress, 6,* 28-38.

Calnan, M., Wainwright, D., Forsythe, M., Wall, B., & Almond, S. (2001). Mental health and stress in the workplace: The case of general practice in the UK. *Social Science and Medicine, 52,* 499-507.

Campbell, J.P., Dunnette, M.D., Lawler, E.E. III, & Weick, K.E. (1970). *Managerial behavior, performance, and effectiveness.* New York: McGraw-Hill.

Cannon, W.B. (1929). *Bodily changes in pain, hunger, fear and rage.* New York: D. Appleton-Century.

Carayon, P., Yang, C.L., & Lee, S-Y. (1995). Examining the relationship between job design and worker strain over time in a sample of office workers. *Ergonomics, 38,* 1199-1211.

Cardoz., G.M., Haines J., & Williams, C.L. (2002). The psychophysiological and psychological influences of interpersonal conflict at work and organisational stressors on the experience of occupational stress. *Paper presented at Conference of Applied Psychology, Singapore.*

Carr, A., Roseingrave, P., & Fitzgerald, M.X. (1996). Factors associated with stress responses in staff caring for patients and cystic fibrosis. *Irish Journal of Psychology, 17,* 241-250.

Carson, J. (2003). Workers' compensation for psychological injury. Unpublished Doctoral Thesis.

Cassidy, T., & Burnside, E. (1996). Cognitive appraisal, vulnerability and coping: An integrative analysis of appraisal and coping mechanisms. *Counselling Psychology Quarterly, 9,* 261-279.

Catalano, R., Rook, K., & Dooley, D. (1986). Labor markets and help seeking: A

test of the employment security hypothesis. *Journal of Health and Social Behavior, 27,* 227-287.

Chartered Institute of Environmental Health. (2006). New CIEH training tool to nip conflict at work in the bud. Publication date: Wednesday, 23 August 2006.

Chemers, M.M., Hays, R.B., Rhodewalt, F., & Wysocki, J. (1985). A person-environment analysis of job stress: A contingency model explanation. *Journal of Personality and Social Psychology, 49,* 628-635.

Comcare (1997). The *management of occupational Stress in Commonwealth Agencies*. Commonwealth of Australia.

Constable, J.F., & Russell D.W. (1986). The effect of social support and the work environment upon burnout among nurses. *Journal of Human Stress, 12*, 20-6.

Cooper, C.L., & Payne, R. (1988). *Causes, coping and consequences of stress at work.* New York: Wiley.

Costa, P.T., & McCrae, R.R. (1990). Personality disorders and the five-factor model of personality. *Journal of Personality Disorders, 4,* 362-371.

Cotton, P. (1995). The assessment and management of psychological dysfunction in occupational settings. In P. Cotton (Ed.). *Psychological Health in the Workplace.* Melbourne: The Australian Psychological Society.

Cox. J. *Stress Works.* Unpublished manuscript. Version 1.0, July 2001.

Cox, T., & Ferguson, E. (1994). Measurement of the subjective work environment. *Work and Stress, 8,* 98-109.

Cram, J. A. & MacWilliams, R. K. (2007). The Cost of Conflict in the Workplace. Cramby River Consultants.

Criddle, W.D. (1993). Teaching RET in the financial and investment industry. *Journal of Rational Emotive and Cognitive Behavior Therapy, 11,* 19-32.

Crouter, A.C., Bumpus, M.F., Maguire, M.C., & McHale, S.M. (1999). Linking parents' work pressure to adolescents' well-being: Insights to dynamics in dual-earner families. *Developmental Psychology, 35,* 1453-1461.

Davidson, L. M., Fleming, R., & Baum, A. (1987). Chronic stress, catecholamines, and sleep disturbance at Three Mile Island. *Journal of Human Stress, 13,* 75-83.

Davis, M., Robins-Eshelman, E.R., & McKay, M. (1995). *The relaxation and stress reduction workbook.* (4th Edition). Oakland, C.A.: New Harbinger Publications.

Day, A.L., & Jreige, S. (2002). Examining Type A behavior pattern to explain the relationship between job stressors and psychosocial outcomes. *Journal of Occupational Health Psychology, 7,* 109-120.

Deary, I.J., Agius, R.M., & Sadler, A. (1996). Personality and stress in consultant psychiatrists. *International Journal of Social Psychiatry, 42,* 112-123.

DeFrank, R.S., Ivancevich, J.M., & Schweiger, D.M. (1988). Job stress and mental well-being: similarities and differences among American, Japanese, and Indian managers. *Journal of Behavioural Medicine, 14,* 160-70.

Deckard, G.J., & Present, R.M. (1989). Impact of role stress on physical therapists' emotional and physical well-being. *Physical Therapy, 69,* 713-718.

Dekker, S. W., & Schaufeli, W. B. (1995). The effects of job insecurity on psychological health and withdrawal: A longitudinal study. *Australian Psychologist, 30,* 57-63.

DeLongis, A., Coyne, J.C., Dakof, G., Folkman, S., & Lazarus, R.S. (1982). Relationship to daily hassles, uplifts and major life events to health status. *Health Psychology, 1,* 119-136.

DeLongis, A., Folkman, S., & Lazarus, R.S. (1988). The impact of daily stress on health and mood: Psychological and social resources as mediators. *Journal of Personality and Social Psychology, 54,* 486-495.

Derogatis, L. R. (1977). The SCL-90 manual F: Scoring, administration and procedures for the SCL-90. Baltimore: John Hopkins University, School of Medicine, Clinical Psychometrics Unit.

Derogatis, L.R. (1992). SCL-90-R. *The administration, scoring and procedures manual* (2nd Edition): Towson: State Clinical Psychometric Research.

Dignam J.T., Barrera M., & West, S.G. (1986). Occupational stress, social support, and burnout among correctional officers. *Journal American Journal of Community Psychology, 14,* 177-193.

Dijkstra, M.T.M., van Dierendonck, D., Evers, A., & De Dreu, C.K.W. (2005). Conflict and well-being at work: The moderating role of personality. *Journal of Managerial Psychology, 20,* 87-104.

Doby, V. & Caplan, R. (1995). Organizational stress as threat to reputation: Effects on anxiety at work and at home. *Academy of Management Journal, 38,* 1105-1123.

Doctor, R.S., Curtis, D., & Isaacs, G. (1994). Psychiatric morbidity in policemen and the effect of brief psychotherapeutic intervention: A pilot study. *Stress Medicine, 10,* 151-157.

Dolan, C.A., Sherwood, A., & Light, K.C. (1992). Cognitive coping strategies and blood pressure responses to real life stress in healthy young men.

Health Psychology, 11, 233-240.

Dolan, S.L. (1994). Stress management intervention and assessment: An overview and an account of two experiences. In A.K. Korman (Ed.), *Human dilemmas in work organizations: Strategies of resolution* (pp. 35-57). New York: Guilford Press.

Dolan, S.L., Van Ameringen, M.R., & Arsenault, A. (1992). Personality, social support and workers' stress. *Relations Industrielles, 47,* 125-139.

Dollard, M., Dormann, C., Boyd, C., Winefield, H., & Winefield, A. (2003). Unique aspects of stress in human service work. *Australian Psychologist, 38,* 84-91.

Dollard, M., Winefield, H., Winefield, A. (1999). Predicting work stress compensation claims and return to work in welfare workers. *Journal of Occupational Health Psychology, 4,* 279-287.

Dollard, M. F., & Winefield, A. H. (1998). A test of the demand-control/support model of work stress in correctional officers. *Journal of Occupational Health Psychology, 3, 1-23.*

Donovan, M.A., Drasgow, F., & Munson, L.J. (1998). The Perceptions of Fair Interpersonal Treatment scale: Development and validation of a measure of interpersonal treatment in the workplace. *Journal of Applied Psychology, 83,* 683-692.

Dua, J. (1996). Development of a scale to assess occupational stress in rural general practitioners. *International Journal of Stress Management, 3,* 117-128.

Duane, M. (1989). Sex differences in styles of conflict management. *Psychological Reports, 65,* 1033-1034.

Dunnett, M.D. (1998). Emerging trends and vexing issues in industrial and organisational psychology. *Applied Psychology: An international Review, 47*, 129-153.

Dyck, M.J. (1992). Subscales of the Dysfunctional Attitude Scale. *British Journal of Clinical Psychology, 31*, 333-335.

Dyer, C. (2002). Judges curb stress cases. Appeal court rulings scrap compensation awards and put onus on workers to tackle employers. *The Guardian*, 6 February.

Earnshaw, J., & Cooper, C.L. (1991). Workers' compensation in stress-related claims: Some thoughts for employers in the UK. *Work and Stress, 5*, 253-257.

Eastburg, M.C., Williamson, M., Gorsuch, R., & Ridley, C. (1994). Social support, personality, and burnout in nurses. *Journal of Applied Psychology, 24*, 1233-1250.

Edwards, J.R. & Rothbard, N. (1999). Work and family stress and well-being: An examination of person–environment fit in the work and family domains. *Organizational Behavior and Human Decision Processes, 77*, 85-129.

Eells, T.D., Lacefield, P., & Maxey, J. (1994). Symptom correlates and factor structure of the Health Professions Stress Inventory. *Psychological Reports, 75*, 1563-1568.

Eisner, D.A. (1984). Mental injury in workers' compensation: An examination of job stress. *American Journal of Forensic Psychology, 2*, 101-111.

Ellis, A., & Harper, R.A. (1975). *A new guide to rational living.* Oxford: Prentice-Hall.

Endler, N.S., & Parker, J.D.A. (1990). Stress and anxiety: Conceptual and

assessment issues. *Stress Medicine, 6*, 243-248.

Evans, G.W., & Carrere, S. (1991). Traffic congestion, perceived control, and psychophysiological stress among urban bus drivers. *Journal of Applied Psychology, 76,* 658-663.

Evans, S., Huxley, P., Gately, C., Webber, M., Mears, A., Pajak, S., Medina, J., Kendall, T., & Katona, C. (2006). Mental health, burnout and job satisfaction among mental health social workers in England and Wales. *British Journal of Psychiatry, 188,* 75-80.

Falkum, E., & Vaglum, P. (2005). The relationship between interpersonal problems and occupational stress in physicians. *General Hospital Psychiatry, 27,* 285-291.

Ferrie, J., Shipley, M., Marmot, M., Stansfield, S., & Smith, G. (1998). The health effects of major organizational change and job insecurity. *Social Science and Medicine, 46,* 243-254.

Flanagan, N.A., & Flanagan, T.J. (2002). An analysis of the relationship between job satisfaction and job stress in correctional nurses. *Research in Nursing and Health, 25,* 282-294.

Flemming, I., & Baum, A. (1987). Stress: Psychobiological assessment. In J.M. Ivancervich & D.C. Ganster (Eds.), *Job Stress: From theory to suggestion* (pp.117-140). New York: Haworth Press.

Folkman, S. (1992). Improving coping assessment: Reply to Stone and Kennedy-Moore. In H. S. Friedman (Ed.), *Hostility, coping, and health* (pp. 215-223). Washington, DC: APA.

Folkman, S. & Lazarus, R.S. (1988). Coping as a mediator of emotion. *Journal of Personality and Social Psychology, 54, 466-75.*

Folkman, S., Lazarus, R.S., Grues, R.J., & DeLongis, A. (1986). Appraisal, coping, health status, and psychological symptoms. *Journal of Personality and Social Psychology, 50,* 571-576.

Fontana, A., & McLaughlin, M. (1998). Coping and appraisal of daily stressors predict heart rate and blood pressure levels in young women *Behavioural Medicine, 24,* 5-16.

Frese, M. (1999). Social support as a moderator of the relationship between work stressors and psychological dysfunctioning: a longitudinal study with objective measures. *Journal of Occupational Health Psychology, 4,* 179-92.

French, J.R.P. Jr., & Caplan, R.D. (1972). Organizational stress and individual strain. In A.J. Marrow (Ed.), *The failure of success* (pp. 30-66). New York: Amazon.

Fried, Y., Rowland, K.M., & Ferris, G.R. (1984). The physiological measurement of work stress: A critique. *Personnel Psychology, 37,* 583-615.

Friedman, M., & Rosenman, R.H. (1959). Association of specific overt behavior pattern with increases in blood cholesterol, blood clotting time, incidence of arcus senilis and clinical coronary artery disease. *Journal of the American Medical Association, 169,* 1286-1296.

Frone, M.R. (2000). Interpersonal conflict at work and psychological outcomes: Testing a model among young workers. *Journal of Occupational Health Psychology, 5,* 246-255.

Frone, M.R., & Rice, R.W. (1987). Work-family conflict: The effect of job and family involvement. *Journal of Occupational Behaviour, 8,* 45-53.

Frone, M.R., Russell, M., & Cooper, M.L. (1992a). Prevalence of work-family conflict: Are work and family boundaries asymmetrically permeable?

Journal of Organizational Behavior, 13, 723-729.

Frone, M.R., Russell, M., & Cooper, M.L. (1992b). Antecedents and outcomes of work-family conflict: Testing a model of work-family interface. *Journal of Applied Psychology, 77,* 65-78.

Frone, M.R., Russell, M., & Cooper, M.L. (1997). Relation of work-family conflict to health outcomes: A four-year longitudinal study of employed parents. *Journal of Occupational and Organizational Psychology, 70,* 325-335.

Fry, P.S. (1995). Perfectionism, humor and optimism as moderators of health outcomes and determinants of coping styles of women executives. *Genetic, Social and General Psychology Monographs, 121,* 211-245.

Fujiwara, K., Tsukishima, E., Tsutsumi, A., Kawakami, N., & Kishi, R. (2003). Interpersonal conflict, social support, and burnout among home care workers in Japan. *Journal of Occupational Health, 45,* 313-20.

Fullerton, C.S., McCarroll, J.E., Ursano, R.J., & Wright, K.M. (1992). Psychological responses of rescue workers: Fire fighters and trauma. *American Journal of Orthopsychiatry, 62,* 371-378.

Ganster, D.C. (1986). Type A behavior and occupational stress. *Journal of Organizational Behavior Management, 8,* 61-84.

Ganster, D.C., Mayes, B.T., Sime, W.E., & Tharp, G.D. (1982). Managing organizational stress: A field experiment. *Journal of Applied Psychology, 67,* 533-542.

Gersch, I. & Teuma, A. (2005). Are educational psychologists stressed? A Pilot Study of Educational Psychologists' Perceptions - Educational Psychology in Practice, - Taylor & Francis.

Giebels, E., & Janssen, O. (2005). Conflict stress and reduced well-being at work: The buffering effect of third-part help. *European Journal of Work and Organizational Psychology, 14,* 137-155.

Gillespie, N.A., Walsh, M., Winefield, A.H., Dua, J., & Stough, C. (2001). Occupational stress in universities: Staff perceptions of the causes, consequences and moderators of stress. *Work and Stress, 15,* 53-72.

Glowinkowski, S.P., & Cooper, C.L. (1986). Managers and professionals in business/industrial settings: The research evidence. *Journal of Organizational Behavior, 8,* 177-193.

Goh, Y.W., & Oei, T.P.S. (1999). Dysfunctional attitude and occupational stress process: A test of the organisational stress model. *Psychologia: An International Journal of Psychology of the Orient, 42,* 1-15.

Goldstein, I.B., Shapiro, D., Chicz-DeMet, A., & Guthrie, D. (1999). Ambulatory blood pressure, heart rate, and neuroendocrine responses in women nurses during work and off work days. *Psychosomatic Medicine, 61,* 387-396.

Gomer, F.E., Silverstein, L.D., Berg, W.K., & Lassiter, D.L. (1987). Changes in electromyographic activity associated with occupational stress and poor performance in the work place. *Human Factors, 29,* 131-143.

Greenglass, E.R., & Burke, R.J. (2001). Impact of Restructuring Scale: An Instrument to Measure Effects of Hospital Restructuring. *Healthcare Management Forum, 14, 24-28.*

Greenglass, E.R., Burke, R.J., & Fiksenbaum, L. (2001). Workload and burnout in nurses. *Journal of Community and Applied Social Psychology, 11,* 211-215.

Greenhalgh, L. (1982). Maintaining organizational effectiveness during organizational retrenchment. *Journal of Applied Behavioral Science, 18*,155-170.

Greenough, C.G., & Fraser, R.D. (1989). The effects of compensation on recovery from low-back injury. *Spine, 14,* 947-955.

Grunfeld, E., Zitzelsberger, L., Coristine, M., Whelan, T.J., Aspelund, F., & Evans, W.K. (2005). Job stress and job satisfaction of cancer care workers. *Psycho-Oncology, 14,* 61-69.

Guest, G.H., & Drummond, P.D. (1992). Effect of compensation on emotional state and disability in chronic back pain. *Pain, 48,* 125-130.

Guglielmi, R.S., & Tatrow, K. (1995). Occupational stress, burnout and health in teachers: A methodological and theoretical analysis. *Review of Educational Research, 68,* 61-99.

Guignon, N. & Pailhé, A., (2004). *Premières Syntheses*, May 2004.

Gunthert, K.C., Cohen, L.H., & Armeli, S. (1999). The role of neuroticism in daily stress and coping. *Journal of Personality and Social Psychology, 77,* 1087-1100.

Guyton, A.C. (1981). *Textbook of Medical Physiology* (6^{th} edn.). Phiadelphia: W.B.

Hagihara, A., Tarumi, K., Miller, A. & Morimoto, K. (1997). Type A and Type B behaviours, work stressors and social support at work. *Preventative Medicine, 26*, 486-494.

Hagihara, A., Tarumi, K., Miller, A.S., Nebeshima, F., & Nobutomo, K. (2000). Work stressors and alcohol consumption among white-collar workers: A signal detection approach. *Journal of Studies on Alcohol, 61,* 462-465.

Hahn, S.E. (2000). The effects of locus of control on daily exposure, coping and reactivity to work interpersonal stressors: A diary study. *Personality and Individual Differences, 29,* 729-748.

Haines, J., Williams, C.L. & Carson, J.M. (2002). Workplace phobia: Psychological and psychophysiological mechanisms. *International Journal of Stress Management, 9,* 129-145.

Haines, J., Williams, C.L., Davidson, J.A., & Long, W. (2002). *Teacher strain and irrational beliefs.* Unpublished manuscript, University of Tasmania.

Hallqvist, J., Diderichsen, F., Theorell, T., Reuterwall, C., & Ahlbom, A. (1998). Is the effect of job strain on myocardial infarction risk due to interaction between high psychological demands and low decision latitude? Results from Stockholm Heart Epidemiology Program (SHEEP). *Social Science and Medicine, 46,* 1405-1415.

Hamilton, F. (2000). Interpersonal conflict at work: A study of contextual factors, conflict handling strategies and perceptions of outcome. Roffey Park Institute Ltd.

Hammer, A.L., & Marting, A. (1988). *The Coping Resources Inventory.* Palo Alto, CA: Consulting Psychologist Press.

Harrison, R.V. (1978). Person-environment fit and job stress. In C.L. Cooper & R. Payne (Eds.), *Stress at work* (pp. 175-205). New York: Wiley.

Hart, P.M., & Cooper, C.L. (2001) Occupational Stress: Toward a more integrated framework. In N. Anderson, D.S. Ones, H.K. Sinangil, & C. Viswesvaren (Eds) *International handbook of work and organizational psychology*, vol.2: Organizational psychology. London: Sage Publications.

Havlovic, S.J., Bouthillette, F., & van der Wal, R. (1998). Coping with downsizing and job loss: Lessons from the Shaughnessy Hospital closure. *Canadian Journal of Administrative Sciences, 15,* 322-332.

Heinisch, D.A., & Jex, S.M. (1997). Negative affectivity and gender as moderators of the relationship between work-related stressors and depressed mood at work. *Work and Stress, 11,* 46-57.

Heponiemi, T., Elovainio, M., Pekkarinen, L., Noro, A., Finne-Soveri, H., & Sinervo, T. (2006). The moderating effect of employee hostility on the association of long-term elderly care unit's negative resident characteristics to employee stress and well-being. *Journal of Occupational Health Psychology, 11,* 157-168.

Hershcovis, M.S., Turner, N., Barling, J., Arnold, K., Dupré, K., Inness, M., LeBlanc, M.M. & Sivanathan, N. (2007). Predicting workplace aggression: A meta-analysis. *Journal of Applied Psychology, 92,* 228-238.

Hillhouse, J.J., & Adler, C.M. (1997). Investigating stress effect patterns in hospital staff nurses: Results of a cluster analysis. *Social Science and Medicine, 45,* 1781-1788.

Hogan, N.L., Lambert, E.G., Jenkins, M., & Wambold, S. (2006). The impact of occupational stressors on correctional staff organizational commitment: A preliminary study. *Journal of Contemporary Criminal Justice, 22,* 44-62.

Horwitz, I.B. (2003). An assessment of occupational stress claims and tests of predictive models using workers' compensation data. *Dissertation Abstracts International: Section B: The Sciences and Engineering. 64(3-B),* 1191.

Hurrell, J.J. Jr., Nelson, D.L., & Simmons, B.L. (1998). Measuring job stressors and strains: Where we have been, where we are, and where we need to go.

Journal of Occupational Health Psychology, 3, 368-389.

Hutri, M., & Lindeman, M. (2002). The role of stress and negative emotions in an occupational crisis. *Journal of Career Development, 29,* 19-36.

Hutt, J., & Weidner, G. (1993). The effects of task demand and decision latitude on cardiovascular reactivity to stress. *Behavioral Medicine, 18,* 181-188.

Insel, P., & Moos, R. (Eds.) (1974). *Health and the social environment.* Lexington, MA: D. C. Heath.

Jamal, M. (1990). Relationship of job stress and Type-A behavior to employees' job satisfaction, organizational commitment, psychosomatic health problems, and turnover motivation. *Human Relations, 43,* 727-738.

Jex, S.M., & Spector, P.E. (1996). The impact of negative affectivity on stressor-strain relations: A replication and Extension. *Work and Stress, 10,* 36-45.

Jobb, D. (2005). Barks With Bite. *Occupational Health and Safety, 21,* 24.

Johnson, J.V., & Hall, E.M. (1988). Job strain, work place social support and cardiovascular disease: A cross-sectional study of a random sample of the Swedish working population. *American Journal of Public Health, 78,* 1336-1342.

Johnson, J.V., Hall, E.M., & Theorell, T. (1989). Combined effects of job strain and social isolation on cardiovascular disease morbidity and mortality in a random sample of the Swedish male working population. *Scandinavian Journal of Work, Environment and Health, 15,* 271-279.

Jorna, P.G. (1993). Heart rate and workload variations in actual and simulated flight. *Ergonomics, 36,* 1043-1054.

Judd, F.K., & Burrows, G.D. (1986). Psychiatry, compensation and rehabilitation. *The Medical Journal of Australia, 144,* 133-155.

Kahn, R.L., & Byosiere, P. (1992). Stress in organizations. In M.D. Dunnette & L.M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (Vol. 3 pp. 571-650). Palo Alto, CA: Consulting Psychologists Press.

Kahn, R.L., Wolfe, D.M., Quinn, R.P., Snoek, J.D., & Rosenthal, R.A. (1964). *Organizational stress: Studies in role conflict and ambiguity.* Oxford: Wiley.

Kalimo, R., Harju, A., Leskinen, J., & Nykyri, E. (1992). Workload, psychophysiological strain and coping of innovation project management in industry. *Scandinavian Journal of Work Environment and Health, 18(S2),* 130-132.

Kanner, A. D., Coyne, J. C., Schaefer, C., & Lazarus, R. S. (1981). Comparison of two modes of stress management: Daily hassles and uplifts versus major life events. *Journal of Behavioral Medicine 4*, 1-39.

Kanninen, K., Punamäki, R-L., & Qouta, S. (2002). The Relation of Appraisal, Coping Efforts, and Acuteness of Trauma to PTS Symptoms Among Former Political Prisoners. Journal of Traumatic Stress, 15, 245-253.

Karasek, R.A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly, 24,* 285-308.

Karasek, R.A., Baker, D., Marxer, F., Ahlbom A., & Theorell, T. (1981). Job decision latitude, job demands, and cardiovascular disease: A prospective study of Swedish men. *American Journal of Public Health, 71,* 694-705.

Kecklund, G. (2005). Long work hours are a safety risk: Causes and practical legislative implications. *Scandinavian Journal of Work, Environment and Health, 31,* 325-327.

Kelloway, E.K., & Barling, J. (1991). Job characteristics, role stress and mental health. *Journal of Occupational Psychology, 64,* 291-304.

Kelloway, E.K., & Day, A. (2005). Building healthy workplaces: Where we need to be. *Canadian Journal of Behavioural Science, 37,* 309-312.

Kelly, A.L., & Berthelsen, D.C. (1995). Preschool teachers' experiences of stress. *Teaching and Teacher Education, 11,* 345-357.

Kendall, E., Murphy, P., O'Neill, V., & Bursnall, S. (2000). *Containing the costs of occupational stress: A new approach to identifying, defining, preventing and managing stress in the workplace.* Perth: Workcover WA.

Kenny D. (1996). Occupational rehabilitation assessed: the verdict of employers. *Journal of Occupational Health and Safety- Australia and New Zealand, 12,* 145-153.

King, J.E. (2000). White collar reactions to job insecurity and the role of the psychological contract: Implications for human resource management. *Human Resource Management, 39,* 79-91.

Kirkcaldy, B., Brown, J., & Cooper, C.L. (1998). The demographics of occupational stress among police superintendents. *Journal of Managerial Psychology, 13,* 90-101.

Kirkcaldy, B.D., Cooper, C.L., Furnham, A., & Brown, J.I. (1993). Personality, job satisfaction and well-being among public sector (police) managers. *European Review of Applied Psychology, 43,* 241-248.

Kirkcaldy B.D. & Siefen, G. (1991). Occupational stress among mental health professionals. *Journal Social Psychiatry and Psychiatric Epidemiology, 26,* 238-244.

Knotts, T. (1996, July 8). Workplace stress doesn't have to kill you. Business Journal Serving Fresno & the Central San Joaquin Valley, 322013. University of Phoenix Online Collection. Available: http://ehost.epnet.com: (2000, September 16).

Kobasa, S.C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37,*1-11.

Kohn, P.M., Lafreniere, K., & Gurevich, M. (1990). The Inventory of College Student's Recent Life Experiences: A decontaminated hassles scale for a special population. *Journal of Behavioral Medicine, 13,* 619-630.

Kossek, E.E., Lautsch, B.A., & Eaton, S.C. (2006). Telecommuting, control, and boundary management: Correlates of policy use and practice, job control, and work-family effectiveness. *Journal of Vocational Behavior, 68,* 347-367.

Kouvonen, A., Kivimaki, M., Virtanen, M., Pentti, J., & Vahtera, J. (2005). Work stress, smoking status, and smoking intensity: An observational study of 46,190 employees. *Journal of Epidemiology and Community Health, 59,* 63-69.

Landsbergis, P.A. (1988). Occupational stress among health care workers: A test of the job demands-control model. *Journal of Organizational Behavior, 9,* 217-239.

LaRocco, J.M., House, J.S., &. French, J.R. (1980). Social support, occupational stress, and health. *Journal of Health and Social Behavior, 21,* 202-218.

Lasky, H. (1991). Psychiatric disability evaluation of the injured worker: Legal overview. *Psychiatric Annals, 21,* 16-22.

Laubach, W., Milch, W., & Ernst, R. (1999). Dimensions of the working load and

work satisfaction in psychiatric care. *Psychotherapy & Medical Psychology, 49*, 38-47.

Lavoie K.L., Miller S.B., Conway, M., & Fleet R.P. (2001). Anger, negative emotions, and cardiovascular reactivity during interpersonal conflict in women. *Psychosomatic Research, 51*, 503-512.

Lawrence A. (2002). Getting to grips with workplace conflict. Practical Assistance for employers in relation to the recognition, prevention and management of workplace conflict. M2 Presswire Coventry,

Lazarus, R.S. (1990). Theory-based stress measurement. *Psychological Inquiry, 1*, 3-13.

Lazarus, R.S., DeLongis, A., Folkman, S. & Grues, R. (1985). Stress and adaptional outcomes: The problem of confounded measures. *American Psychologist, 40, 770-779.*

Lazarus, R.S., & Folkman, S. (1984). *Stress, appraisal and coping.* New York: Springer.

Leather, P., Beale, D., Lawrence, C., & Dickson, R. (1997). Effects of exposure to occupational violence and the mediating impact of fear. *Work and Stress, 11*, 329-340.

Leavitt, F. (1992). The physical exertion factor in compensable work injuries: A hidden flaw in previous research. *Spine, 17*, 629-640.

Lee, M.D., MacDermid, S.M., & Buck, M.L. (2002). Reduced-load work arrangements: Response to stress or quest for integrity of functioning? In D.L. Nelson & R.J. Burke (Eds.), *Gender, work stress, and health* (pp. 169-190). Washington, DC: American Psychological Association.

Leiter, M.P. (2005). Perception of risk: An organizational model of occupational

risk, burnout, and physical symptoms. *Anxiety, Stress and Coping, 18,* 131-144.

Lester, N., Nebel, L.E., & Baum, A. (1994). Psychophysiological and behavioral measurement of stress: Applications to mental health. In W.R. Avison & I.H. Gotlib (Eds.), *Stress and mental health: Contemporary issues and prospects for the future* (pp. 291-314). New York: Plenum Press.

Licht, C.A. (2000). Occupational stress as a function of type of organization and sex of employee: A Reassessment. *Journal of Psi Chi, 6,* 1.

Lim, T.K. (1999). Stress levels of school administrators. *Psychology: A Journal of Human Behavior, 36,* 33-39.

Lin, N., & Lai, G. (1995). Urban stress in China. *Social Science and Medicine, 41,* 1131-1145.

Lippel, K. (1999). Workers' compensation and stress: Gender and access to compensation. *International Journal of Law and Psychiatry, 22,* 79-89.

Litchfield, K., & Gow, K. (2002). Coping strategies as predictors of Strain. *Journal of Applied Health Behaviour, 4, 36*-45.

Lloyd, C., McKenna, K., & King, R. (2005). Sources of stress experienced by occupational therapists and social workers in mental health settings. *Occupational Therapy International, 12,* 81-94.

Long, B.C., & Gessaroli, M.E. (1989). The relationship between teacher stress and perceived coping effectiveness: Gender and marital differences. *Alberta Journal of Educational Research, 35,* 308-324.

Lu, L., Tseng, H.J., & Cooper,C.L. (1999). Managerial stress, job satisfaction and health in Taiwan. *Stress Medicine, 15,* 53-64.

Lundberg, U., & Frankenhaeuser, M. (1999). Stress and workload of men and

women in high-ranking positions. *Journal of Occupational Health Psychology, 4,* 142-151.

Lundberg, U., Dohns, I.E., Melin, B., Sandsjoe, L., Palmerud, G., Kadefors, R., Ekstroem, M., & Parr, D. (1999). Psychophysiological stress responses, muscle tension, and neck and shoulder pain among supermarket cashiers. *Journal of Occupational Health Psychology, 4,* 245-255.

Lusk, S.L., Hagerty, B.M., Gillespie, B. & Caruso, C.C. (2002). Chronic effects of workplace noise on blood pressure and heart rate. *Archives of Environmental Health, 4,* 273-281.

Lynch, D.A. (1999). Sources of stress, perceived stress levels, and levels of self-esteem among career-oriented mothers who are employed full-time, part-time, and those who opted to stay home full-time. *Dissertation Abstacts International: Section B: The Sciences and Engineering, 60(3-B),* 1307.

MacDonald, H. A., Colotla, V., Flamer, S., & Karlinsky, H. (2003). Posttraumatic Stress Disorder (PTSD) in the workplace: A descriptive study of workers experiencing PTSD resulting from work injury. *Journal of Occupational Rehabilitation, 13, 63*-77.

Malinauskiene, V., Theorell, T., Grazuleviciene, R., Azaraviciene, A., Obelenis, V., & Azelis, V. (2005). Psychosocial factors at work and myocardial infarction among men in Kaunas, Lithuania. *Scandinavian Journal of Work, Environment and Health, 31,* 218-223.

Malkinson, R., Kushnir, T., & Weisberg, E. (1997). Stress management and burnout prevention in female blue-collar workers: Theoretical and practical implications. *International Journal of Stress Management, 4,* 183-195.

Malouff, J.M., & Schutte, N.S. (1986). Development and validation of a measure

of irrational belief. *Journal of Consulting and Clinical Psychology, 54,* 860-862.

Mansell, A., Brough, P., & Cole, K. (2006). Stable predictors of job satisfaction, psychological strain, and employee retention: An evaluation of organizational change within the New Zealand Customs Service. *International Journal of Stress Management, 13,* 84-107.

Marchand, A., Durand, P., & Demers, A. (2005). Work and mental health: The experience of the Quebec workforce between 1987 and 1998. *Work: Journal of Prevention, Assessment and Rehabilitation, 25,* 135-142.

Margolis, B.L., Kroes, W.H., & Quinn, R.R. (1974). Job stress: An unlisted occupational hazard. *Journal of Occupational Medicine, 16,* 659-661.

Marini, I., Todd, J., & Slate, J.R. (1995). Occupational stress among mental health employees. *Journal of Rehabilitation Administration, 19,* 123-130.

Matthews, K.A., Cottlington, E.M., Talbott, E., Kuller, L.H., & Siegel, J.M. (1987). Stressful work conditions and diastolic blood pressure among blue-collar factory workers. *American Journal Epidemiology, 126,* 280-91.

Maurier, W.L., & Northcott, H.C. (2000). Job uncertainty and health status for nurses during restructuring of health care in Alberta. *Western Journal of Nursing Research, 22,* 623-641.

Mazur, P. J., & Lynch, M.D. (1989). Differential impact of administrative, organizational, and personality factors on teacher burnout. *Teaching and Teacher Education, 5,* 337-353.

McCalister, K.T., Dolbier, C.L, Webster, J.A. Mallon, M.W., & Steinhardt, M. A. (2006). Hardiness and support at work as predictors of work stress and job satisfaction *American Journal of Health Promotion, 20,* 183-191.

McCormack, H.M., de Horne, D.J., & Sheather, S. (1988). Clinical applications of visual analogue scales: A critical review. *Psychological Medicine, 18,* 1007-1019.

McIntosh, G., Frank, J., Hogg-Johnson, S., Bombardier, C. & Hall, H. (2000). Prognostic factors for time receiving workers' compensation benefits in a cohort of patients with low back pain. *Spine, 25,* 147-57.

McKee, V. (1996). Working to a frenzy. *The Guardian.* Tuesday 1 October, 14.

McLean, P.D. (1976). Depression as a specific response to stress. In I.G. Sarason & C.D. Spielberger (Eds.), *Stress and anxiety. Vol 3.* (pp.297-323). Oxford: Hemisphere.

Meleis, A.I., Messias, D.K.H., & Arruda, E.N. (1996). Women's work environment and health: Clerical workers in Brazil. *Research in Nursing and Health, 19,* 53-62.

Miller, P. (2003). The last ten years: Trends in Australian jurisdictions stress claims: Statistical data to accompany jurisdictional activity. *Australian Psychologist, 38,* 81-83.

Moos, H. (1981). *Work Environment Scale.* California: Consulting Psychologist Press.

Moos, R.H., & Billings, A.G. (1982). Conceptualizing and measuring coping resources and processes. In L. Goldberger & S. Breznitz (Eds.), *Handbook of stress: Theoretical and critical aspects* (pp. 212-230). New York: Macmillan.

Morash, M., Haarr, R., & Kwak, D-H. (2006). Multilevel influences on police stress. *Journal of Contemporary Criminal Justice, 22,* 26-43.

Muchinsky, P. (1997). *Psychology applied to work: An introduction to industrial*

and organisational psychology (5th Ed.). Pacific Grove, CA: Brookes/Cole Publishers.

Muntaner, C., & O'Campo, P.J. (1993). A critical appraisal of the demand/control model of the psychosocial work environment: Epistemological, social, behavioral and class considerations. *Social Science and Medicine, 36,* 1509-1517.

Nicoll, P., Fielding J., & Newton, N. (1997). The management of occupational stress in Commonwealth employment. The Publications Manager Australian National Audit Office GPO Box 707, Canberra ACT 2601. http://www.anao.gov.au/uploads/documents/OccStressCommEmp.doc

National Institute of Occupational Safety and Health (1999): *Stress at work.* DHHS (NIOSH) Publication No. 99-101 Cincinnati, OH

Noblet, A., Rodwell, J., & McWilliams, J. (2001). The job strain model is enough for managers: No augmentation needed. *Journal of Managerial Psychology, 16,* 635-649.

Noer, D.M. (1993). *Healing the Wounds: Overcoming the trauma of layoffs and revitalizing downsized organizations.* San Francisco, CA: Jossey-Bass/Pfeiffer.

Noronha, D.O., & Faust, J. (2006). Identifying the variables impacting post-burn psychological adjustment: A meta-analysis. *Journal of Pediatric Psychology, 32,* 380-391.

O'Connor, D.B., O'Connor, R.C., White, B.L., & Bundred, P.E. (2001). Are occupational stress levels predictive of ambulatory blood pressure in British GPs?: An exploratory study. *Family Practice, 18,* 92-94.

O'Keeffe, M.K., & Baum, A. (1990). Conceptual and methodological issues in

the study of chronic stress. *Stress Medicine, 6,* 105-115.

Oberlechner, T., & Nimgade, A. (2005). Work stress and performance among financial traders. *Stress and Health, 21,* 285-293.

Okada, Y., & Ishikuma, T. (1999). The relationship between nurses' automatic thoughts and burnout. *Japanese Journal of Counseling Science, 32,* 1-9.

Osipow, S.H., & Spokane, A.R. (1992). *The Occupational Stress Inventory.* Florida. Psychological Assessment Resources.

Pearlin, L., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behaviour, 19,* 2-21.

Pearson, D.D.R., McCarthy, B., & Guthrie, R. (1999*) Report of the review of the Western Australia workers.* Victorian WorkCover Authority Annual Report 1999/2000, Melbourne.

Peeters, M.A.G., & Rutte, C.G. (2005). Time management behavior as a moderator for the job demand-control interaction. *Journal of Occupational Health Psychology, 10,* 64-75.

Peeters, M.C.W., Buunk, B.P., & Schaufeli, W.B. (1995). A micro-analysis exploration of the cognitive appraisal of daily stressful events at work: The role of controllability. *Anxiety, Stress and Coping, 8,* 127-139.

Pergola, T., Salazar, M.K., Graham, K.Y., & Brines, J. (1999). Case management services for injured workers: provider's perspectives. *AAOHN Journal, 47,* 397-404.

Perrott, S.B., & Taylor, D.M. (1995). Attitudinal differences between police constables and their supervisors: Potential influences of personality, work environment, and occupational role. *Criminal Justice and Behavior, 22,* 326-339.

Peter, R., Alfredsson, K., Knutsson, A., Siegrist, J., & Westerholm, P. (1999). Does a stressful psychosocial work environment mediate the effects of shift work on cardiovascular risk factors? *Scandinavian Journal of Work, Environment and Health, 25,* 376-381.

Peter, R., & Siegrist, J. (1999). Chronic psychosocial stress at work and cardiovascular disease: The role of effort-reward imbalance. *International Journal of Law and Psychiatry, 22,* 441-449.

Peter, R. & Siegrist, J. (2000). Psychosocial work environment and the risk of coronary heart disease. *Journal International Archives of Occupational and Environmental Health 73, S41-S45.*

Phillips-Miller, D.L., Campbell, N.J., & Morrison, C.R. (2000). Work and family: Satisfaction, stress, and spousal support. *Journal of Employment Counseling, 37,* 16-30.

Porat, B. (1981). Event and agent: Toward a structural theory of job satisfaction. *Personnel Psychology, 34,* 523–534.

Pradhan, M., & Misra, N. (1995). Spouse support and quality of marital relationship as correlates of stress. *Journal of the Indian Academy of Applied Psychology, 21,* 43-50.

Price, R.H., & Hooijberg, R. (1992). Organizational exit pressures and role stress: Impact on mental health. *Journal of Organizational Behavior, 13,* 641-651.

Purse, K. (2000). Workers' compensation, secondary disabilities and workplace safety incentives. *Journal of Occupational Health and Safety - Australia and New Zealand, 16,* 23-28.

Rabkin, J. G., & Struening, E. L. (1976). Life events, stress and illness. *Science, 194*, 1013–1020.

Rainey, D.W. (1995). Stress, burnout, and intention to terminate among umpires. *Journal of Sport Behavior, 18,* 312-323.

Rajeswari, K.S., & Anatharaman, R.M. (2005). Role of human-computer interaction factors as moderators of occupational stress and work exhaustion. *International Journal of Human-Computer Interaction, 19,* 137-154.

Randolfi, E. (1996, December 12-13). Stress management evaluation [online]. Available: http://imt.net/~randolfi/StressMgtEval.html: (2000, September 14).

Rathod, S., Roy, L., Ramsay, M., Das, M., Birtwistle, J., & Kingdon, D. (2000). A survey of stress in psychiatrists working in the Wessex Region. *Psychiatric Bulletin, 24,* 133-136.

Revicki, D.A., & May, H.J. (1983). Development and validation of the Physician Stress Inventory. *Family Practice Research Journal, 2,* 211-225.

Rice, P.L. (1999). *Stress and Health (3rd edn.).* Pacific Grove, CA: Brooks/Cole.

Richardson, A.M., Burke, R.J., & Leiter, M.P. (1992). Occupational demands, psychological burnout and anxiety among hospital personnel in Norway. *Anxiety, Stress and Coping, 5,* 55-68.

Ritvanen, T., Louhevaara, V., Helin, P., Väisänen, S.M., & Hänninen, T. (2006). Responses of the autonomic nervous system during periods of perceived high and low work stress in younger and older female teachers. *Applied Ergonomics, 37,* 311-318.

Robertson, J., Hatton, C., Felce, D., Meek, A., Carr, D., Knapp, M., Hallam, A., Emerson, E., Pinkney, L., Caesar, R., & Lowe, K. (2005). Staff stress and morale in community-based settings for people with intellectual disabilities and challenging behaviour: A brief report. *Journal of Applied Research in Intellectual Disabilities, 18,* 271-277.

Robinson, B.E., Flowers, C., & Carroll, J. (2001). Work stress and marriage: A theoretical model examining the relationship between workaholism and marital cohesion. *International Journal of Stress Management, 8,*165-175.

Robinson, H.M., Sigman, M.R., & Wilson, J.P. (1997). Duty-related stressors and PTSD symptoms in suburban police officers. *Psychological Reports, 81,* 835-845.

Robinson, O., & Griffiths, A. (2005). Coping with the stress of transformational change in a government department. *Journal of Applied Behavioral Science, 41,* 203-221.

Romanov, K., Appelberg, K., Honkasalo, M.L., & Koskenvuo, M. (1996). Recent interpersonal conflict at work and psychiatric morbidity: A prospective study of 15,530 employees aged 24-64. *Journal of Psychosomatic Research, 40,* 169-176.

Roscoe, A.H. (1993). Heart rate as a psychophysiological measure for in-flight workload assessment. *Ergonomics, 36,* 1055-1062.

Roskies, E., & Louis-Guerin, C. (1990). Job insecurity in managers: Antecedents and consequences. *Journal of Organizational Behavior, 11,* 345-359.

Rotter, J.B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80,* 1-28.

Rout, U., & Rout, J.K. (1997). A comparative study of occupational stress, job satisfaction and mental health in British general practitioners and Canadian family physicians. *Psychology, Health and Medicine, 2,* 181-190.

Rowe, M.M., & Sherlock, H. (2005). Stress and verbal abuse in nursing: Do burned out nurses eat their young? *Journal of Nursing Management, 13,* 242-248.

Rupert, P.A., & Morgan, D.J. (2005). Work setting and burnout among professional psychologists. *Professional Psychology: Research and Practice, 36,* 544-550.

Rush, M.C., Schoel, W.A., & Barnard, S.M. (1995). Psychological resiliency in the public sector: "Hardiness" and pressure for change. *Journal of Vocational Behaviour, 46,* 17-39.

Sahu, K., & Misra, N. (1995). Life stress and burnout in female college teachers. *Journal of the Indian Academy of Applied Psychology, 21,* 109-113.

Salanova, M., Perio, J.M., & Schaufeli, W.B. (2002). Self-efficacy specificity and burnout among information technology workers: An extension of the job demand-control model. *European Journal of Work and Organizational Psychology, 11,* 1-25.

Sanders, J.D., Smith, T.W., & Alexander, J.F. (1991). Type A behavior and marital interaction: Hostile-dominant responses during conflict. *Journal of Behavioral Medicine, 14,* 567-580.

Sausen, K.P., Lovallo, W.R., Pincomb, G.A., & Wilson, M.F. (1992). Cardiovascular responses to occupational stress in male medical students: A paradigm for ambulatory monitoring studies. *Health Psychology, 11,* 55-60.

Schindler, B.A., Novack, D.H., Cohen, D.G., Yager, J., Wang, D., Shaheen, N.J., Guze, P., Wilkerson, L., & Drossman, D.A. (2006). The impact of the changing health care environment on the health and well-being of faculty at four medical schools. *Academic Medicine, 81,* 27-34.

Schnall, P.L., Landbergis, P.A., & Baker, D. (1994). Job strain and cardiovascular disease. *Annual Review of Public Health, 15,* 381-411.

School of Occupational Therapy Curtin University of Technology Western Australia. Does Workers Compensation Influence Recovery Rates? A critical review of the literature. July 2001

Schulz, P., Kirschbaum, C., Prusner, J., & Hellhammer, D. (1998). Increased free cortisol secretion after awakening in chronically stressed individuals due to work overload. *Stress Medicine, 14,* 91-97.

Schwarzer, R. (1991). An integration of stress Concepts into eysenck's model. *Psychological Inquiry, 2,* 264-265.

Selye, H. (1936). A syndrome produced by diverse nocuous agents. *Nature, 138,* 32.

Selye, H. (1982). History and present status of the stress concept. In L. Goldberger & S. Breznitz (Eds.), *Handbook of stress: Theoretical and clinical aspects* (pp. 7-17). New York: The Free Press.

Sherman, M.D., & Thelen, M.H. (1998). Distress and professional impairment among psychologists in clinical practice. *Professional Psychology: Research and Practice, 29,* 79-85.

Sheward, L., Hunt, J., Hagen, S., MacLeod, M., & Ball, J. (2005). The relationship between UK hospital nurse staffing and emotional exhaustion and job dissatisfaction. *Journal of Nursing Management, 13,* 51-60.

Shimazu, A., Shimazu, M., & Odara, T. (2005). Divergent effects of active coping on psychological distress in the context of the Job Demands-Control-Support Model: The roles of job control and social support. *International Journal of Behavioral Medicine, 12,* 192-198.

Siddle, B.K. (1995). Sharpening the warrior's edge. *PPCT Research Publications*

Siegrist, J. (1995). Emotions and health in occupational life: New scientific findings and policy implications. *Patient Education and Counseling, 25,* 227-236.

Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology, 1,* 27-41.

Siegrist, J., & Klein, D. (1990). Occupational stress and cardiovascular reactivity in blue-collar workers. *Work and Stress, 4,* 295-304.

Singh, R.G. (1990). Relationship between occupational stress and social support in flight nurses. *Aviation, Space and Environmental Medicine, 61,* 349-352.

Skjorshammer, M., & Hofoss, D. (1999). Physician in conflict: A survey study of individual and work-related characteristics. *Scandinavian Journal of Caring Sciences, 13,* 211-216.

Smith, A., Brice, C., Collins, A., Matthews V., & McNamara R. (2000). *The scale of occupational stress: A further analysis of the impact of demographic factors and type of job.* Centre for Occupational and Health Psychology School of Psychology, Cardiff: University for the Health and Safety Executive.

Smith, C.L., & de Chesnay, M. (1994). Critical incident stress debriefings for crisis management in post-traumatic stress disorders. *Medicine and Law, 13,* 185-191.

Smith, C.S., & Sulsky, L. (1995). An investigation of job-related coping strategies across multiple stressors and samples. In L.R. Murphy, J.J. Hurrell, Jr., S.L. Sauter & G.P. Keita (Eds.), *Job stress interventions* (pp. 109-123). Washington, DC: American Psychological Association.

Smith, D.L., Petruzzello, S.J., Kramer, J.M., Warner, S.E., Bone, B.G. & Misner, J.E. (1995). Selected physiological and psychobiological responses to physical activity in different configurations of firefighting gear. *Ergonomics 38,* 2065-2077.

Smith, T., & Ruiz, J. (2002). Psychosocial influences on the development and course of coronary heart disease: Current status and implications for research and practice. *Journal of Consulting and Clinical Psychology, 70,* 548-568.

Sparks, K., & Cooper, C.L. (1999). Occupational differences in the work-strain relationship: Towards the use of situation-specific models. *Journal of Occupational and Organizational Psychology, 72,* 219-229.

Steel, L. (2001). Staff support through supervision. *Emotional and Behavioural Difficulties, 6,* 91-101.

Steptoe, A. (1991). Psychological coping, individual differences and physiological stress responses. In C.L. Cooper & R. Payne, (Eds.), *Personality and stress: Individual differences in the stress process* (pp. 205-233). Chichester, UK: John Wiley.

Steptoe, A., Roy, M.P., & Evans, O. (1996). Psychosocial influences on ambulatory blood pressure over working and non-working days. *Journal of Psychophysiology, 10,* 218-227.

Stewart, W., & Barling, J. (1996). Daily work stress, mood and interpersonal job

performance: A mediational model. *Work and Stress, 10,* 336-351.

Stokes, J., Riger, S., & Sullivan, M. (1995). Measuring perceptions of the working environment for women in corporate settings. *Psychology of Women Quarterly, 19,* 533-549.

Stolworthy, T.M. (1996). A comparison of hardiness and Type A behaviors to type of worker's compensation claim *Dissertation Abstracts The Sciences and Engineering, 57,* 2203.

Stone, A.A., & Neale, J.M. (1982). Development of a methodology for assessing daily experiences. In A. Baum & J.E. Singer (Eds.), *Advances in environmental psychology* (pp. 49-82). Hillsdale, NJ: Erlbaum.

Stotland, E., & Pendleton, M. (1989). Workload, stress, and strain among police officers. *Behavioral Medicine, 15,* 5-17.

Styhre, A., Ingelgard, A., Beausang, P., Castenfors, M., Mulec, K., & Roth, J. (2002). Emotional management and stress: Managing ambiguities. *Organization Studies, 23,* 83-103.

Substance Abuse and Mental Health Services Administration, (1995).

Swedlow, A., Johnson, G., Smithline, N., & Milstein, A. (1992). Increased costs and rates of use in the california workers' compensation system as a result of self-referral by physicians. *The New England Journal of Medicine, 327,* 1502-1506.

Tabachnick, B. & Fidell, L. (1996). Using multivariate statistics. New York. HarperCollins College Publishers. 3 rd edition.

Taris, T.W., Bakker, A.B., Schaufeli, W.B., Stoffelsen, J., & van Dierendonck, D. (2005). Job control and burnout across occupations. *Psychological Reports, 97,* 955-961.

Tattersall, A.J., & Hockey, G.R.J. (1995). Level of operator control and changes in heart rate variability during simulated flight maintenance. *Human Factors, 37,* 682-698.

Terry, D.J., Tonge, L. & Callan, V.J. (1995). Employee adjustment to stress: The role of coping resources, situational factors, and coping responses. *Anxiety, Stress, and Coping, 8,* 1-24.

Tetrick, L.E. (1992). Mediating effect of perceived role stress: A confirmatory analysis. In J.C. Quick, L.R. Murphy. *Stress and well-being at work: Assessments and interventions for occupational mental health* (pp. 134-152). Washington, DC: American Psychological Association.

Tewksbury, R., & Higgins, G. (2006) Prison staff and work stress: The role of organizational and emotional influences. *American Journal of Criminal Justice, 30,* 247-266.

Theorell, T, Tsutsumi, A, Hallquist, J, Reuterwall, C, Hogstedt, C, Fredlund, P, Emlund, N, Johnson, J.V. (1998). Decision latitude, job strain, and myocardial infarction: a study of working men in Stockholm. The SHEEP Study Group. Stockholm Heart epidemiology Program. *American Journal of Public Health, 88, 382–388.*

Theorell, T., & Karasek, R.A. (1996). Current issues relating to psychosocial job strain and cardiovascular disease research. *Journal of Occupational Health Psychology, 1,* 9-26

Theorell, T., Westerlund, H., Alfredsson, L., & Oxenstierna, G. (2005). Coping with critical life events and lack of control--the exertion of control. *Psychoneuroendocrinology, 30,* 1027-1032.

Thoits, P.A. (2006). Personal agency in the stress process. *Journal of Health and*

Social Behaviour, 47, 309-323.

Thompson, M. (1996). Stressed to the breaking point: How managers are pushing people to the brink. TUC Survey of Safety Representatives Data- initial findings http://www.cdc.gov/NIOSH/jobstress.html. Publications Dissemination EID.

Thompson, M.S., & Williams, K.C. (1995). Psychological determinants of burnout in teachers. In P. Cotton (Ed.), *Psychological health in the workplace: Understanding and managing occupational stress* (pp. 247-263). Carlton, Vic: Australian Psychological Society.

Tillman, J., & Beard, M. (2001). Managers health lifestyle, coping strategies, job stressors and performance: An occupational stress model. *Journal of Theory Construction And Testing 5*, 7-11.

Tisza, S.M., Mottl, J.R. III, & Mathews, D.B. (2003). Current trends in workers' compensation stress claims. *Current Opinion in Psychiatry, 16,* 571-574.

Tobin D.L., Holroyd K.A, & Reynold R. (1984). *The Coping Stress Inventory.* Ohio: Ohio University.

Tombaugh, J.R., & White, L.P. (1990). Downsizing: An empirical assessment of survivors' perceptions in a post layoff environment. *Organization Development Journal, 8*, 32-43.

Toohey, J. (1993). Quality of working life project: A study of occupational stress in Commonwealth Government Agencies. Canberra, Australia: Comcare

Toohey, J. (1995). Managing the stress phenomenon at work. In P. Cotton (Ed.), *Psychological health in the workplace: Understanding and managing occupational stress* (pp. 51-71). Carlton, Vic.: Australian Psychological Society.

Trenberth, L., & Dewe, P. (2002). The importance of leisure as a means of coping with work related stress: An exploratory study. *Counselling Psychology Quarterly, 15,* 59-72.

Tsutsumi, A., Nagami, M., Morimoto, K., & Matoba, T. (2002). Responsiveness of measures in the effort-reward imbalance questionnaire to organizational changes: A validation study. *Journal of Psychosomatic Research, 52,* 249-256.

Tyler, P., & Cushway, D. (1995). Stress in nurses: The effects of coping and social support. *Stress Medicine, 11,* 243-251.

Tytherleigh, M.Y., Webb, C., Cooper, C.L., & Ricketts, C. (2005). Occupational stress in UK higher education institutions: A comparative study of all staff categories. *Higher Education Research and Development, 24,* 41-61.

Uchitelle, L., & Kleinfield, N.R. (1996). On the battlefields of business, millions of casualties. *New York Times, March 3:A1.*

Unden, A.L. (1996). Social support at work and its relationship to absenteeism. *Work and Stress, 10,* 46-61.

U'Ren, R., & U'Ren, M. (1999). Workers' compensation, mental health claims, and political economy. *International Journal of Law and Psychiatry, 22,* 451-471.

Van Vegchel, N., de Jonge, J., Bosma, H., & Schaufeli, W. (2005). Reviewing the effort-reward imbalance model: Drawing up the balance of 45 empirical studies. *Social Science and Medicine, 60,* 1117-1131.

Varhama, L.M., & Bjorkqvist, K. (2004). Conflicts, workplace bullying and burnout problems among municipal employees. *Psychological Reports, 94,* 1116-1124.

Vrijkotte, T., Riese, G.M., & de Geus, H. (2001). Cardiovascular reactivity to work stress assessed by ambulatory blood pressure, heart rate, and heart rate variability. Progress in ambulatory assessment: Computer-assisted psychological and psychophysiological methods in monitoring and field studies. *Hypertension*,35, 345-360.

Vrijkotte, T.G.M., Van Doornen, L.J.P., & De Geus, E.J.C. (1999). Work stress and metabolic and hemostatic risk factors. *Psychosomatic Medicine, 61,* 796-805.

Wager, N., Fieldman, G. & Hussey, T. (2003). The effect on ambulatory blood pressure of working under favourably and unfavourably perceived supervisors. *Occupational and Environmental Medicine 60*, 468-474

Weitzman, P.F. (2001). Young Adult Women Resolving Interpersonal Conflicts. *Journal of Adult Development, 8,* 61-67.

Whitehead, A.J., & Ryba, K. (1995). New Zealand teachers' perceptions of occupational stress and coping strategies. *New Zealand Journal of Educational Studies, 30,* 177-188.

Wiesner, M., Windle, M., & Freeman, A. (2005). Work stress, substance use, and depression among young adult workers: An examination of main and moderator effect model. *Journal of Occupational Health Psychology, 10,* 83-96.

Wilson, G.F. (1993). Air-to-ground training missions: A psychophysiological workload analysis. *Ergonomics, 36,* 1071-1087.

Wolff, B., Grabe, H.J., Völzke, H., Lüdemann, J., Kessler, C., Dahm, J.B., Freyberger, H. J., John, U., & Felix, S.B. (2005). Relation between psychological strain and carotid atherosclerosis in a general population.

Heart, 91, 460-464.

Woodward, A.J., Carless, S.A., & Findlay, B.M. (2001). A psychometric evaluation of the Irrational Beliefs Inventory in a marital context. *Australian Psychologist, 36,* 255-261.

WorkCover Corporation of South Australia. (1999). *Characteristics of open mental disorder claims*. Adelaide, South Australia, Australia: Author.

World Health Organization. (2000). *ICIDH-2: The international classification of functioning and disability.* Available: http://www.who.ch/icidh [2001, 5 June 2001].

Worrall, N., & May, D. (1989). Towards a person-in-situation model of teacher stress. *British Journal of Educational Psychology, 59,* 174-186.

Wren, B., & Michie, S. (2003). Staff experience of the healthcare system. In S. Llewelyn,. & P. Kennedy, (Eds) *Handbook of Clinical Health Psychology*: Wiley.

Yawen, Chun-wan, Chiou-Jong & Tung-liang, (2005). Job insecurity and its association with health among employees in the Taiwanese general population. 41-52

Zeidner, M., & Endler, N. S. (Eds.). (1996). *Handbook of coping: Theory, research, applications*. New York: John Wiley.

Zingle, H.W., & Anderson, S.C. (1990). Irrational beliefs and teacher stress. *Canadian Journal of Education, 15,* 445-449.

Zohar, D. (1999). When things go wrong: The effect of daily work hassles on effort, exertion and negative mood. *Journal of Occupational and Organizational Psychology, 72,* 2

APPENDICES

APPENDIX A

Appendix A

Information Sheet

Psychophysiological and psychological responses to occupational stress:

comparison of interpersonal and organisation stressors.

The above project is being conducted by Dr Janet Haines, Dr Christopher Williams and Ms Ginelle Cardoz of the School of Psychology at the University of Tasmania. The purpose of this study is to examine the ways in which people respond to different types of stressful events at work: organisational stressors and interpersonal stressors. This project is being undertaken so that it can be determined if people respond differently to these occupational stressors so that appropriate interventions and organisational responses can be suggested. This project is being undertaken as part of the requirements for a Masters of Psychology (Clinical) degree.

We are interested in comparing the workplace experiences, the ways of thinking about problem situations, current psychological symptoms, and the psychophysiological and psychological reactions to stressful work events of people who have experienced an organisational stressor and people who have experienced an interpersonal work stressor.

If you agree to participate, the nature and extent of your stressful workplace experiences will be discussed with you. You will be asked to complete some questionnaires about your workplace experiences, your thoughts about these experiences, and your psychological symptoms. These questionnaires will take approximately one hour to complete although they do not have to be completed in one sitting.

You then will be interviewed about a particular stressful workplace experience (either an organizational stressor or an interpersonal stressor), a nonstressful workplace event and an emotionally neutral event that will be used for comparison purposes. This interview will be recorded on audio cassette. The information from the interview will be used to devise imagery scripts that will be used to guide you through the memory of the episodes. An imagery script is a structured written account of the story provided by you during interviews. You will be required to attend the laboratory and have electrodes and measurement instruments applied to your torso and finger tips so that measures of heart rate and other cardiac responses, respiration, and skin conductance level can be taken. The administration of these electrodes and measurement instruments do not cause discomfort. These measurements will be taken while you are guided through imagery of the stressful workplace event, the nonstressful workplace

event and an emotionally neutral event of your choosing. You will be asked to rate your psychological response to the content of the imagery scripts.

We wish to emphasize that the information you share with us will be treated in a confidential manner. All written information, computer data files and audio cassettes will be stored with a participation number rather than your name. The data will be secured in a locked cabinet.

Participation in this study is completely voluntary. If you agree to participate in the study, but then change your mind and wish to withdraw, you may do so at any time without prejudice.
If you wish to discuss the project before, during or after participation, please contact Dr Christopher Williams on (03) 6226 2245 or Dr Janet Haines on (03) 6226 7124.

This project has been approved by the University Human Ethics Committee. If you have any concerns or complaints regarding the ethical nature of the project, you may contact the Chair or Executive Officer of the University Human Ethics Committee. The contact number are as follows: Dr Janet Vial, Chair, (03) 6226 4842 Executive Officer, (03) 6226 2763.

A debriefing will be conducted with you at the end of the procedure. If you find this procedure distressing, a registered psychologist will be available. If you have any conceals about your stressful experiences at work, we would advise you to contact your general medical practitioner or, if available, a counsellor at your organisation' s employee assistance programme.

We would be happy to discuss your individual results with you. Overall results will be available at the completion of the project if you are interested. If you decide to withdraw from the project, we would welcome the opportunity to discuss with you any concerns you have about the project and your participation in it.
Please keep this information sheet and, if necessary, refer to the information it contains. In addition, if you agree to participate, you will be asked to sign a statement of informed consent. A copy of this statement will be supplied to you.
Thank you.

APPENDIX B

Appendix B

Statement Of Informed Consent

I have read and understood the 'Information Sheet' for this study. The nature and possible effects of the study have been explained to me.

I understand that the study involves:

- Discussing my stressful work experiences;
- Discussing the circumstances surrounding a particular stressful workplace event (either an organisational stressor or an interpersonal stressor);
- Discussing a nonstressful workplace event;
- Discussing an emotionally neutral event of my choosing;
- Completing published questionnaires that assess my work experiences, the way I think about my experiences, and my current psychological symptoms;
- Attending a recording session and having electrodes and measurement instruments fitted so that recordings of my heart rate, respiration, and skin conductance level can be taken while I am being asked to image aspects of the stressful workplace event, the nonstressful workplace event, and the emotionally neutral event;
- Rating my psychological responses to, and the way I think about each of these events.

I understand that all research data will be treated as confidential and that my name chill not be attached to the data that are collected. Any questions that I have asked have been answered to my satisfaction. I agree to participate in this study and understand that I may withdraw at any time without prejudice. I agree that research data gathered for the study may be published.

I am aware that I will not be able to be identified in published material.

Name of participant: .....

Signature of participant: ..... Date: .....

I have explained this project and the implications for participation in it to this volunteer and I believe that the consent is informed and that s/he understands the implications of participation.

Name of investigator: .....

Signature of investigator: ..... Date: .....

APPENDIX C

Appendix C

Demographics Questionnaire

SURVEY OF TASMANIAN PUBLIC SECTORS EMPLOYEES

PERSONAL DEMOGRAPHIC INFORMATION

Sex: Male _____ Female _____

Age: _____

Marital Status:

Never Married _____
Married /de facto _____
Separated / divorced _____
Widowed _____

Education:
(Tick your highest qualification)

Did not complete high school _____
Complete high school _____
Matriculation _____
Trade qualification _____
Tertiary qualification _____

EMPLOYMENT DEMOGRAPHIC INFORMATION

Time Employed in Tasmanian Public Service: Years _____ Months _____

Time in present position: Years _____ Months _____

Type of occupation:

_____

Classification of position:

_____

Nature of employment:
(Tick as many as appropriate)

Full time _____
Part time _____
Contract _____
Casual _____
Temporary _____

Permanent _____
Acting higher _____
duties

Please tick all those work experiences that have happened to you over the last 12 months.

You have had your job reclassified to a higher position. _____

You had your job reclassified with little change to your position. _____

You have been promoted to a higher position. _____

You have moved to an alternative position of a similar level. _____

You have had your workplace restructured. _____

You have had to re-apply for your own position. _____

You have had to learn new work practices. _____

You have had a change of supervisor. _____

You have had a high staff turnover in your area. _____

You have moved workplaces (e.g., physically moved from one site to another but did not change your position). _____

You have had an increase in your workload. _____

You have had a decrease in your workload. _____

Your job entails dealing with the public in person. _____

Your job entails dealing with the public on the telephone. _____

Your job involves meeting deadlines. _____

Your job involves a lot of keyboard work. _____

Your job involves providing resources for other departments/agencies. _____

Your job has a high workload. _____

Your job has a low workload. _____

Your job is often interrupted by inquiries. _____

Your work is allocated by someone else on a day to day basis. _____

You are responsible for the work of others. _____

You are responsible for the well being of others. _____

You often have to make quick decisions as part of your job. _____

Have you ever been to see your doctor because you have been stressed at work? YES/NO

Have you ever taken sick leave because you have been stressed at work? YES/NO

Have you even taken annual leave/recreation leave because you have been stressed at work? YES/NO

Have you ever taken long service leave because you have been stressed at work? YES/NO

Have you ever made a worker's compensation claim for work-related stress? YES/NO

Have you ever experienced a serious conflict with a colleague? YES/NO

Do you have an employee assistance program available to you? YES/NO/UNKOWN

Have you ever used the employee assistance program in relation to work-related stress? YES/NO

Please list any other ways you have coped with work-related stress:

APPENDIX D

Appendix D

Job Satisfaction Visual Analogue Scale

By placing a mark on the horizontal line, please indicate how satisfied you are at the moment with the quality of your work life.

Completely Dissatisfied	Completely Satisfied

APPENDIX E

Appendix E

Visual Analogue Scales

Participant number.....

Visual Analogue Scales

Script: .....

Stage: .....

Please, indicate with a mark on each line how you are feeling.

Not angry _____ Angry

Not anxious _____ Anxious

Not afraid _____ Afraid

How clear was your image of the scene described?

Unclear _____ Clear

How close to real life was that scene?

Not close _____ Close

APPENDIX F

Appendix F

Examples of Personalised Guided Imagery Scripts of Stressful, Non Stressful and Neutral Events

Neutral Script

Close your eyes. Right. You are in your kitchen at home. It is a rectangular shape. There is an open servery where you can see into the lounge. The kitchen faces north. The windows are on the north and eastern side, you get all day sun. There is lots of wood in your kitchen, You have a slate floor, Look at the pink mat. Now look at the broom mat. You think it is from Mexico. You got it in 1968. It has the Mexican emblem on it. It is starting to fray. You are wearing black Nike track pants and a Canterbury Rugby top, it is blue and green and white. You have on black socks with purple flowers on them. You are feeling a bit sleepy. Concentrate on that feeling right now. It is about o'clock in the moving, You have three dogs, two are Golden Retrievers. They are hovering around, hoping for a biscuit. Really picture this scene, Concentrate on how you are feeling right now. Now open your eyes and switch that scene off.

Close your eyes. Right. You are going to have a cup of cot-fee. Go and turn on your jug. There is water in the jug, Flick the switch up. Look out of the window, You are looking for birds. You can see the valley. Take out a cup from under then bench where the jug is. Look at the cup, It is brown pottery. It has a circular emblem on it and it says Mothers Favorites. The dogs are still hovering around you. Really hear their claws on the slate floor. You are relaxed. Concentrate on that feeling right now. Now get the coffee from the tray, There are lots of things on this tray like Milo, Sugar, Tea, Coffee You are feeling fine and relaxed, You are looking forward to having this cup of coffee. You like your coffee. Now get a spoon out from the drawer on your left. You are gazing outside the window. Listen to the kettle boiling. You are still a little drowsy. Concentrate on that feeling right now. Now open your eyes and switch that scene off.

Close your eyes. Right. Now open the coffee container and put in a spoon of coffee into your mug. Now take the sugar container of the tray, Put in one teaspoon of sugar in your cup. Now walk over to your fridge. It is about 4 steps away over your left shoulder. It is on the other side of the room. Open the fridge. Take out the milk. It's a 2 litre pack of light start. Really look at the milk label. Now walk over to the bench where your coffee cup is. Concentrate on how you are feeling right now. Put some milk in the cup. You put the milk in first, before the water because X has explained why it has to be done this way. Now walk over to the fridge with the milk, and put it away. Notice all the other things in the fridge. Hear the click of the jug. The noise has stopped and the lever has flicked down. Pour the boiling water into the cup. Smell the coffee instantly. You love the smell of coffee. Concentrate on that feeling right now. Now open your eyes

and switch that scene off.

Close your eyes. Right. You are thinking about whether you should light the fire whether you should give the horses some bail. You are wondering if you should shower first or after you feed the horses. You are thinking about what time you have to leave the house. Have a sip of your coffee straight away. It's not too hot. You are feeling very contented. Concentrate on that feeling right now. You sit down. Think to yourself, I wish I had the paper to read. You are enjoying your coffee. Take another sip, and really taste it. The coffee is tasting very nice and it smells like proper coffee. You think to yourself you have made it a little stronger than usual. You think about whether you are still thirsty and whether you are going to have some toast. Concentrate on that feeling right now. Now open your eyes and switch that scene off.

Stressful Script

Close your eyes. Right. Think back to 2002. You are Margate Primary. The principal is X . You are currently treating Grade V/VI. It is a Tuesday afternoon at 3. 15 pm. You are in his office. Really picture the room. It has grey carpet. There are windows to the right and on the left wall. There is a view of the garden. His desk faces the wall. Look at his desk. It is clear. He is sitting at his desk with one leg over his knee. He is facing you. You are directly opposite him. The light is behind him. Concentrate on how you are feeling right now. You know this isn't going to be a pleasant interview. A note had been left in your pigeonhole regarding this meeting. You had requested a senior staff member to attend the meeting but none was present. He advised you that you should have organized it, Really picture his face. He has a beard. He is short. You are feeling extremely nervous and apprehensive. Concentrate on that feeling right now. Now open your eyes and switch that scene off.

Close your eyes. Right. You leave to get a senior staff member. This staff-member knows nothing about the situation. Meeting begins. You have some notes about the issues that need to be addressed. You have these sitting on your knee. He says you can put those away this is my meeting, I ask the questions, you answer. You felt angry, frustrated and powerless. You have a sinking feeling this is not going to be good it is going to be very unpleasant. Concentrate on those thoughts and feelings right now. You didn't put your notes away. You are going to try to use them to answer his questions. You have knots in your stomach. You have a tightness in your throat and you feel very tense. It is hard to speak. Concentrate on that feeling right now. Now open your eyes and switch that scene off.

Close your eyes. Right. He starts asking questions and you answer, If you didn't give him the answer he wanted. he would lean forward in his chair and kept saying 'and then' whilst lurching forward. The issue was that you questioned his professionalism during a case conference. That was minuted. You asked him if you had his support. He is questioning whether you had the right to do this. You gave him all the reasons and details of the case. Concentrate on those thoughts and feelings right now. He felt that you were doing useless work with a particular

student but came to this conclusion without looking at the work you had done. None of the real issues of the conference were being discussed. You are still trying to explain why you had asked for his support, He Want an apology. You refuse to do that. You also refuse to cry. The questioning period went on for about half an hour, but seemed longer. You feel powerless, useless and overwhelmed. Concentrate on this feeling right now. Now open your eyes and switch that scene off.

Close your eyes. Right. After going through all the questions, he said that's all I wanted now you can go. There has been no resolution to any of the issues. He didn't provide answers to any of the questions you had, You feel frustration and no being able to get on with the man and not being about to protect kids more. You think to yourself, this man suspends kids for reasons to get back to teachers. Feel the knots in your stomach. You are very very angry. He has the power to change people's lives. Concentrate on that feeling right now. You start to question you self belief and whether you should question the principle. You question your rights and the legitimacy of your argument, You think to yourself, am I wrong here? Concentrate on this feeling right now. Now open your eyes and switch that scene off.

Non-Stressful Script

Close your eyes. Right. You are now at Franklin Primary, It is your 4th year. X is the principle. It is 2001. It is mid-march. You have your staff meeting on Peter's 40 foot yacht. Think back to this time. It is a Tuesday about 1 month into term. You always have your staff meetings on a Tuesday. Peter is rowing himself, and 6 teachers including yourself out. It is a cool-ish day, there is not too much sum and there is a light breeze. You motor down the Huon River for about half an hour. You are completely relaxed. Concentrate on that feeling right now. You are all chatting. Set the main sail and the spinnaker. You are heading for Franklin up the Huon. There are biscuits, cheese and wine. You often go out on the boat for these staff meetings, Look around you at the scenery, You feel relaxed. Concentrate on this feeling right now. Now open your eyes and switch that scene off.

Close your eyes. Right. You have an agenda. You are all discussion the kids and the programs and the plans for the rest of the term. Picture the six teachers around you. There is X, X's wife who teaches Grade II/III. X is also there. She is also new at the school. Now look over at X she is a little dumpy lady. She is very motherly. Now look over at X, the prep teacher. You are feeling fine. Feel the breeze on your face. Concentrate on that feeling right now. Think to yourself, she is one of the best prep teachers you know. Now really picture X, he is the PE teacher. You are all feeling relaxed. Really picture this scene and concentrate on all the voices of people chatting. Concentrate on this feeling right now. Now open your eyes and switch that scene off.

Close your eyes. Right. There is plenty of open discussion and everyone is very relaxed. They are taking a collaborative approach about discussing the agenda.

Everyone is nibbling on biscuits, cheese and wine. You think to yourself how friendly and open everyone is and how much they care for the kids. You also think about how close knit the support of each other is, you do these team meetings regularly on Cracker-Jack. You are feeling very comfortable and relaxed Concentrate on that feeling right now. Look at the view around you while you are discussing the children. The river is not very wide. The hills behind the Franklin are steep, and very green. There are a variety of different greens. The trees, the grass, the apple trees. Think to yourself how lovely it is. Now look at the town. It is like a ribbon around the river. You are feeling pleasant and relaxed. Concentrate on this feeling right now. Now open your eyes and switch that scene off.

Close your eyes. Right. Look over at Egg Island. It is flat and low. Look at the huge flax plants at the edge of the Island. Peter is telling you lots of snake stories knowing your fears. Listen to his voice. Really taste the biscuits and cheese you are eating. You are all almost through the Agenda. Now you are still feeling relaxed. Concentrate on that feeling right now. Look up at the sails. The spinnaker is red. Really picture this. You have a feeling of real warmth and you feel safe. Think how different teams meeting are compared with your old school. Continue to enjoy the view around you and the conversation. Concentrate on that feeling of relaxation right now. Now open your eyes and switch that scene off.

APPENDIX G

Appendix G

Occupational Stress Study Questionnaire

OCCUPATIONAL STRESS STUDY
STAGE 1 DATA BOOKLET

Claim No: _____
Name: _____
Data file print out attached:
_____

NATURE OF WORK STRESS

Date of onset: _____

Time since onset:

*to present if not resolved _____

* to completion of claim_____

Nature of onset
Acute/Chronic

Sources of job stress:

Lack of control _____

Information gap _____

Cause and effect _____

Conflict _____

Blocked career _____

Alienation _____

Overload _____

Under load _____

Environment _____

Value Conflict _____

Other _____

Details of nature of precipitant

_____

_____

LEVEL OF IMPAIRMENT

%	Description of level of impairment
0	Reactions to stressors of daily living WITHOUT loss of personal or social efficiency AND capable of performing activities of daily living without supervision or assistance.
5	Despite the presence of ONE of the following is capable of performing activities of daily living without supervision or assistance. *reactions to stressors of daily living with minor loss of personal or social efficiency * lack of conscience directed behaviour without harm to community or self * minor distortions of thinking.
10	Despite the presence of MOREE THAN ONE of the following is capable of performing activities of daily living without supervision or assistance. *reactions to stressors of daily living with minor loss of personal or social efficiency * lack of conscience directed behaviour without harm to community or self * minor distortions of thinking.
15	Any ONE of the following accompanied by a need for some supervision and direction in activities of daily living. * reactions to stressors of daily living which cause modification of daily living patterns * marked disturbances in thinking * definite disturbances in behaviour
20	Any TWO of the following accompanied by a need for some supervision and direction in activities of daily living. * reactions to stressors of daily living which cause modification of daily living patterns

* marked disturbances in thinking
* definite disturbances in behaviour

25 ALL of the following accompanied by a need for some supervision and direction in activities of daily living.
* reactions to stressors of daily living which cause modification of daily living patterns
* marked disturbances in thinking
* definite disturbances in behaviour

% Description of level of impairment

---

30 Any ONE of the following accompanied by a need for supervision and direction in activities of daily living.
* hospital discharges who require daily medication or regular therapy to avoid remission
* loss of self control and /or inability to learn from experience causing considerable damage to self or community.

40 MORE THAN ONE of the following accompanied by a need for supervision and direction in activities of daily living.
* hospital discharges who require daily medication or regular therapy to avoid remission
* loss of self control and /or inability to learn from experience causing considerable damage to self or community.

50 ONE of the following
*severe disturbances of thinking and / or behaviour which entail potential or actual harm to self and / or others
*need for supervision and direction in a confined environment.

60 BOTH of the following
*severe disturbances of thinking and / or behaviour which entail potential or actual harm to self and / or others
*need for supervision and direction in a confined environment.

90 Very severe disturbance in all aspects of thinking and behaviour such as to require constant supervision and care in a confined environment and assistance with all aspects of activities of daily living.

Other comments:

GLOBAL ASSESSMENT OF FUNCTIONING (GAF) SCLAE (DSM-IV)

Consider psychological, social and occupational functioning on a hypothetical continuum of mental health illness. Do not include impairment in functioning due to physical (or environment) limitations.

Code (Note: use intermediate codes when appropriate, e.g. 45, 68, 72)

100 – 91	Superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought out by others because of his or her many positive qualities. No symptoms.
90 – 81	Absent or minimal symptoms (e.g., mild anxiety before an exam), good functioning in all areas, interested and involved in a wide range of activities, socially effective, generally satisfied with life, nomore than everyday problems or concerns (e.g., an occasional argument with family members)
80-71	If symptoms are present, they are transient and expectable reactions to psychosocial stressors (e.g., difficulty concentrating after family argument), no more than slight impairment in social, occupational, or school functioning (e.g., temporarily falling behind in schoolwork).
70 – 61	Some mild symptoms (e.g., depressed mood and mild insomnia) OR some difficulty in social, occupational, or school functioning (e.g. occasional truancy, or theft within the household), but generally functioning pretty well, has some meaningful interpersonal relationships.
60 – 51	Moderate symptoms (e.g., flat affect and circumstantial speech, occasional panic attacks) OR moderate difficulty in social, occupational or school functioning (e.g., few friends, conflicts with peers or co-workers)
50 – 41	Serious symptoms (e.g., suicidal ideation, severe obsession rituals, frequent shoplifting) OR any serious impairment in social, occupational, or school functioning (e.g. no friends, unable to keep a job).

Code (Note: use intermediate codes when appropriate, e.g. 45, 68, 72)

40 – 31	Some impairment in reality testing or communication (e.g., speech is at times illogical, obscure, or irrelevant), OR major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood (e.g., depressed man avoids friends, neglects family, and is unable to work; child frequently beats up younger children, is defiant at home, and is failing school).
30 – 21	Behaviour is considerably influenced by delusions or hallucinations OR serious impairment in communication or judgment (e.g. sometimes incoherent, acts grossly inappropriately, suicidal preoccupation) OR inability to function in almost all areas (e.g. stays in bed all day; no job, home, or friends).
20 – 11	Some danger of hurting self or others (e.g. suicide attempts without clear expectation of death; frequently violent; manic excitement) OR occasionally fails to maintain minimal personal hygiene (e.g. smears faeces) OR gross impairment in communication (e.g., largely incoherent or mute).
10 – 1	Persistent danger of severely hurting self or others (e.g., recurrent violence) OR persistent inability to maintain minimal personal hygiene OR serious suicidal act with clear expectation of death.
0	Inadequate information

Other comments

PSYCHOLOGICAL SYMPTOMS

Agitation _____

Agoraphobic symptoms ____

Angry outbursts_____

Anxiety _____

Appetite disturbance _____

Chest pains _____

Confusion _____

Constipation _____

Delusions _____

Depersonalisation_____

Depression _____

Diarrhea _____

Dizziness _____

Fatigue _____

Flashbacks _____

Flattened affect _____

Guilt _____

Hallucinations_____

Headaches _____

Helplessness _____

Hopelessness _____

Loss of interest / pleasure ____

Low energy / lethargy _____

Memory disturbance _____

Muscle tension _____

Nausea _____

Obsessive- compulsive _____

Panic attacks _____

Paranoid ideation _____

Self – criticism _____

Sleep disturbance _____

Social withdrawal _____

Specific phobic symptoms _____

Suicidal ideation _____

Suicide attempts _____

Suspiciousness _____

Sweating _____

Tachycardia _____

Tearfulness _____

Tremor / Shaking _____

Weight gain _____

Weight loss _____

Hostility _____ Worthlessness _____

Hyperventilation_____

Indecisiveness_____

Irritability _____

Loss of concentration _____

Other symptoms:

_____

_____

DIAGNOSES

Diagnosis: Diagnosed by:

_____

_____

HOSPITALISATIONS

Date: Hospital: Length of stay: Reason for stay:

REVIEW FOR INSURER

Date: Provider: Outcome:

_____

_____

_____

_____

MEDICAL APPOINTMENTS

Provider: Type of provider: Item number: Date:

MEDICATION

Type: Dose/Amount: Prescribed by: Date dispensed:

REHABILITATION CONSULTANTS

Provider: Service: Date:

OTHER THERAPEUTIC SERVICES

Provider: Service: Date:

FACTORS BEYOND THE WORKPLACE

Major life events

Social Support

Functioning outside work

Pre morbid functioning (inc. psychiatric history)

PATTERN LEADING UP TO STRESS CLAIM

Nature and pattern of work attendance

Nature and extent of utilisation of medical services

RETURN TO WORK PROGRAM

Nature: Graded / Full time

Number of attempts: _____

Restricted duties: _____ Yes/No

Alternative duties: _____ Yes/No

Retraining: _____ Yes/No

_____

_____

_____

Natural history: _____

_____

_____

LITIGATION

Was this claim disputed: _____ Yes / No

Initially: _____

Prolonged: _____

Late: _____

Was there a period when benefits were not paid: _____ Yes / No

Date/ duration: _____

Was a common law claim initiated: _____ Yes / No

Comment: _____

_____

_____

OUTCOME

Full time return to work in same job _____

Full time return to work in different job _____

Part time return to work in same job _____

Part time return to work in different job _____

Permanent disability / did not return to work _____

Outcome not resolved: _____

ADDITIONAL COMMENTS

APPENDIX H

Appendix H

Means Table for Script x Stage x Group for Heart Rate & Visual Analogue Scales

Table 26. Means and standard deviations for script x stage x group for heart rate for the organisational group.

	Organisational Group							
Script	Stage							
	Scene		Approach		Incident		Consequence	
	M	SD	M	SD	M	SD	M	SD
Stressful	71.26	15.10	71.82	15.18	72.38	15.15	71.08	14.84
Non Stressful	69.52	15.05	69.63	15.88	70.64	15.9	70.44	14.71
Neutral	69.67	14.80	68.82	13.91	68.75	13.97	69.00	13.99

Table 27. Means and standard deviations for script x stage x group for heart rate for the interpersonal group.

	Interpersonal Group							
Script	Stage							
	Scene		Approach		Incident		Consequence	
	M	SD	M	SD	M	SD	M	SD
Stressful	74.37	10.92	74.71	10.98	75.10	12.21	73.55	11.18
Non Stressful	71.76	11.61	68.87	16.67	70.93	11.39	71.56	11.76
Neutral	69.64	9.74	69.11	10.42	69.63	10.18	69.28	10.11

Script x Stage x Group for Angry – Not Angry

Table 28. Means and standard deviations for script x stage x group for visual analogue scales of angry – not angry for the organisational group.

	Organisational Group							
Script	Stage							
	Scene		Approach		Incident		Consequence	
	M	SD	M	SD	M	SD	M	SD
Stressful	45.00	34.49	54.91	32.44	62.25	33.85	57.33	35.79
Non Stressful	8.16	8.200	10.66	10.94	12.08	12.56	10.75	12.71
Neutral	7.00	6.70	7.08	9.86	7.08	6.81	6.83	6.92

Table 29. Means and standard deviations for script x stage x group for visual analogue scales of angry – not angry for the interpersonal group.

	Interpersonal Group							
Script	Stage							
	Scene		Approach		Incident		Consequence	
	M	SD	M	SD	M	SD	M	SD
Stressful	34.11	24.78	43.53	32.60	70.15	30.36	67.07	33.58
Non Stressful	10.76	10.33	9.15	7.78	9.23	8.00	7.17	8.50
Neutral	6.00	5.65	5.11	5.55	6.92	10.00	3.46	3.74

Script x Stage x Group for Afraid – Not Afraid

Table 30. Means and standard deviations for script x stage x group for visual analogue scales of afraid – not afraid for the organisational group.

	Organisational Group							
Script	Stage							
	Scene		Approach		Incident		Consequence	
	M	SD	M	SD	M	SD	M	SD
Stressful	45.33	32.01	62.50	30.24	68.41	31.10	50.83	33.66
Non Stressful	9.66	9.26	10.58	10.34	12.50	13.65	9.83	13.90
Neutral	5.75	8.22	10.66	15.37	10.58	14.41	12.75	16.67

Table 31. Means and standard deviations for script x stage x group for visual analogue scales of afraid – not afraid for the interpersonal group.

	Interpersonal Group							
Script	Stage							
	Scene		Approach		Incident		Consequence	
	M	SD	M	SD	M	SD	M	SD
Stressful	40.42	27.10	45.26	28.39	57.92	30.20	58.11	31.36
Non Stressful	9.96	15.28	9.03	11.21	9.26	10.84	6.92	10.68
Neutral	6.76	8.061	6.88	8.29	5.11	5.43	3.34	3.68

Script x Stage x Group for Anxious – Not Anxious

Table 32. Means and standard deviations for script x stage x group for visual analogue scales of anxious – not anxious for the organisational group.

	Organisational Group							
Script	Stage							
	Scene		Approach		Incident		Consequence	
	M	SD	M	SD	M	SD	M	SD
Stressful	58.50	33.69	67.25	33.23	79.33	22.29	70.41	23.44
Non Stressful	13.58	13.98	12.50	13.01	16.00	13.11	9.25	7.85
Neutral	10.33	11.59	8.33	10.19	9.75	12.44	10.83	12.99

Table 33. Means and standard deviations for script x stage x group for visual analogue scales of anxious – not anxious for the interpersonal group.

	Interpersonal Group							
Script	Stage							
	Scene		Approach		Incident		Consequence	
	M	SD	M	SD	M	SD	M	SD
Stressful	52.76	31.35	62.46	26.77	82.61	18.47	82.84	21.93
Non Stressful	16.38	16.65	13.50	12.50	12.19	14.43	7.92	10.07
Neutral	8.57	8.00	6.80	5.75	7.00	8.95	3.46	3.38

Script x Stage for Anxious – Not Anxious

Table 34. Means and standard deviations for script x stage differences for visual analogue scales of anxious – not anxious.

Script	Stage							
	Scene		Approach		Incident		Consequence	
	M	SD	M	SD	M	SD	M	SD
Stressful	54.57	31.76	63.97	28.59	81.57	19.51	78.92	22.86
Non Stressful	15.50	15.72	13.18	12.49	13.39	13.97	8.34	9.34
Neutral	9.13	9.16	7.28	7.33	7.86	10.09	5.78	8.37